County of Caroline
Joseph C. Schiebel
Superintendent
Public Utilities
233 West Broaddus Avenue
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Bowling Green, Virginia 22427
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December 21, 2011

Department of Environmental Quality
Northern Virginia Regional Office
13901 Crown Court
Woodbridge, Va. 22193

Re: NPDES Application

Please find attached a copy of the NPDES Application for the Caroline County Regional Wastewater Treatment Plant.

If you have any questions or comments please feel free to contact me.

Sincerely,

Joseph C. Schiebel
Caroline County, VA
All-America City
2009

FACILITY NAME AND PERMIT NUMBER:
Caroline County Regional Sewage Treatment Plant - VA0073504

Form Approved 1/14/99
OMB Number 2040-0086

FORM 2A NPDES

NPDES FORM 2A APPLICATION OVERVIEW

APPLICATION OVERVIEW

Form 2A has been developed in a modular format and consists of a "Basic Application Information" packet and a "Supplemental Application Information" packet. The Basic Application Information packet is divided into two parts. All applicants must complete Parts A and C. Applicants with a design flow greater than or equal to 0.1 mgd must also complete Part B. Some applicants must also complete the Supplemental Application Information packet. The following items explain which parts of Form 2A you must complete.

BASIC APPLICATION INFORMATION:

A. **Basic Application Information for all Applicants.** All applicants must complete questions A.1 through A.8. A treatment works that discharges effluent to surface waters of the United States must also answer questions A.9 through A.12.

B. **Additional Application Information for Applicants with a Design Flow ≥ 0.1 mgd.** All treatment works that have design flows greater than or equal to 0.1 million gallons per day must complete questions B.1 through B.6.

C. **Certification.** All applicants must complete Part C (Certification).

SUPPLEMENTAL APPLICATION INFORMATION:

D. **Expanded Effluent Testing Data.** A treatment works that discharges effluent to surface waters of the United States and meets one or more of the following criteria must complete Part D (Expanded Effluent Testing Data):

1. Has a design flow rate greater than or equal to 1 mgd,
2. Is required to have a pretreatment program (or has one in place), or
3. Is otherwise required by the permitting authority to provide the information.

E. **Toxicity Testing Data.** A treatment works that meets one or more of the following criteria must complete Part E (Toxicity Testing Data):

1. Has a design flow rate greater than or equal to 1 mgd,
2. Is required to have a pretreatment program (or has one in place), or
3. Is otherwise required by the permitting authority to submit results of toxicity testing.

F. **Industrial User Discharges and RCRA/CERCLA Wastes.** A treatment works that accepts process wastewater from any significant industrial users (SIUs) or receives RCRA or CERCLA wastes must complete Part F (Industrial User Discharges and RCRA/CERCLA Wastes). SIUs are defined as:

1. All industrial users subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations (CFR) 403.6 and 40 CFR Chapter I, Subchapter N (see instructions); and
2. Any other industrial user that:
   a. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions); or
   b. Contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
   c. Is designated as an SIU by the control authority.

G. **Combined Sewer Systems.** A treatment works that has a combined sewer system must complete Part G (Combined Sewer Systems).

ALL APPLICANTS MUST COMPLETE PART C (CERTIFICATION)

BASIC APPLICATION INFORMATION

PART A. BASIC APPLICATION INFORMATION FOR ALL APPLICANTS:

All treatment works must complete questions A.1 through A.8 of this Basic Application Information packet.

A.1. Facility Information.

Facility name: Caroline County Regional Sewage Treatment Plant

Mailing Address: 22101 Rogers Clark Blvd
Ruther Glen, VA 22546

Contact person: Joshua L. Carson

Title: Chief Operator

Telephone number: (804) 448-0922

Facility Address (not P.O. Box): 22101 Rogers Clark Blvd
Ruther Glen, VA 22546

A.2. Applicant Information. If the applicant is different from the above, provide the following:

Applicant name: Caroline County Public Utilities

Mailing Address: PO Box 424
Bowling Green, VA 22427

Contact person: Joseph C. Schiebel

Title: Interm Director of Public Utilities

Telephone number: (804) 633-4390

Is the applicant the owner or operator (or both) of the treatment works?

✓ owner ✓ operator

Indicate whether correspondence regarding this permit should be directed to the facility or the applicant.

✓ facility ✓ applicant

A.3. Existing Environmental Permits. Provide the permit number of any existing environmental permits that have been issued to the treatment works (include state-issued permits).

NPDES	VA0073504	PSD	
UIC		Other	VAN030045
RCRA		Other	VAR051710

A.4. Collection System Information. Provide information on municipalities and areas served by the facility. Provide the name and population of each entity and, if known, provide information on the type of collection system (combined vs. separate) and its ownership (municipal, private, etc.).

Name	Population Served	Type of Collection System	Ownership
Caroline County	1,020	Separate	Municipal

Total population served 1,020

A.5. Indian Country.

a. Is the treatment works located in Indian Country?

_____ Yes ✓ No

b. Does the treatment works discharge to a receiving water that is either in Indian Country or that is upstream from (and eventually flows through) Indian Country?

_____ Yes ✓ No

A.6. Flow. Indicate the design flow rate of the treatment plant (i.e., the wastewater flow rate that the plant was built to handle). Also provide the average daily flow rate and maximum daily flow rate for each of the last three years. Each year's data must be based on a 12-month time period with the 12th month of "this year" occurring no more than three months prior to this application submittal.

a. Design flow rate 0.50 mgd

	Two Years Ago	Last Year	This Year	
b. Annual average daily flow rate	0.3481	0.3482	0.3603	mgd
c. Maximum daily flow rate	0.8043	0.6060	1.0294	mgd

A.7. Collection System. Indicate the type(s) of collection system(s) used by the treatment plant. Check all that apply. Also estimate the percent contribution (by miles) of each.

✓ Separate sanitary sewer	100 %
_____ Combined storm and sanitary sewer	_____ %

A.8. Discharges and Other Disposal Methods.

a. Does the treatment works discharge effluent to waters of the U.S.? ✓ Yes _____ No

If yes, list how many of each of the following types of discharge points the treatment works uses:

i. Discharges of treated effluent	1
ii. Discharges of untreated or partially treated effluent	0
iii. Combined sewer overflow points	0
iv. Constructed emergency overflows (prior to the headworks)	0
v. Other _____	0

b. Does the treatment works discharge effluent to basins, ponds, or other surface impoundments that do not have outlets for discharge to waters of the U.S.? _____ Yes ✓ No

If yes, provide the following for each surface impoundment:

Location: _____

Annual average daily volume discharged to surface impoundment(s) 0 mgd

Is discharge ✓ continuous or _____ intermittent?

c. Does the treatment works land-apply treated wastewater? _____ Yes ✓ No

If yes, provide the following for each land application site:

Location: _____

Number of acres: _____

Annual average daily volume applied to site: _____ Mgd

Is land application _____ continuous or _____ intermittent?

d. Does the treatment works discharge or transport treated or untreated wastewater to another treatment works? _____ Yes ✓ No

If yes, describe the mean(s) by which the wastewater from the treatment works is discharged or transported to the other treatment works (e.g., tank truck, pipe).

If transport is by a party other than the applicant, provide:

Transporter name:

Mailing Address:

Contact person:

Title:

Telephone number:

For each treatment works that receives this discharge, provide the following:

Name:

Mailing Address:

Contact person:

Title:

Telephone number:

If known, provide the NPDES permit number of the treatment works that receives this discharge.

Provide the average daily flow rate from the treatment works into the receiving facility. _____ mgd

e. Does the treatment works discharge or dispose of its wastewater in a manner not included in A.8.a through A.8.d above (e.g., underground percolation, well injection)? _____ Yes ✓ No

If yes, provide the following for each disposal method:

Description of method (including location and size of site(s) if applicable):

Annual daily volume disposed of by this method:

Is disposal through this method _____ continuous or _____ intermittent?

WASTEWATER DISCHARGES:

If you answered "yes" to question A.8.a, complete questions A.9 through A.12 **once for each outfall** (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. **If you answered "no" to question A.8.a**, go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

A.9. Description of Outfall.

a. Outfall number: 001

b. Location:
Ruther Glen (City or town, if applicable) — 22546 (Zip Code)
Caroline (County) — VA (State)
N37° 57' 54.10" (Latitude) — W77° 25' 14.90" (Longitude)

c. Distance from shore (if applicable): 0.00 ft.

d. Depth below surface (if applicable): 0.00 ft.

e. Average daily flow rate: 0.3603 mgd

f. Does this outfall have either an intermittent or a periodic discharge? ____ Yes ✓ No (go to A.9.g.)

If yes, provide the following information:

Number of times per year discharge occurs: ____

Average duration of each discharge: ____

Average flow per discharge: ____ mgd

Months in which discharge occurs: ____

g. Is outfall equipped with a diffuser? ____ Yes ✓ No

A.10. Description of Receiving Waters.

a. Name of receiving water: Polecat Creek, then into Mattaponi River, then into York River

b. Name of watershed (if known): Chesapeake Bay

United States Soil Conservation Service 14-digit watershed code (if known): ____

c. Name of State Management/River Basin (if known): York River

United States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080105

d. Critical low flow of receiving stream (if applicable):
acute ____ cfs chronic ____ cfs

e. Total hardness of receiving stream at critical low flow (if applicable): ____ mg/l of $CaCO_3$

A.11. Description of Treatment.

a. What levels of treatment are provided? Check all that apply.

✓ Primary ✓ Secondary
✓ Advanced ✓ Other. Describe: Tertiary Filtration

b. Indicate the following removal rates (as applicable):

Design BOD_5 removal or Design $CBOD_5$ removal	85 %
Design SS removal	85 %
Design P removal	71 %
Design N removal	80 %
Other _____	_____ %

c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe.

Ultraviolet

If disinfection is by chlorination, is dechlorination used for this outfall? _____ Yes _____ No

d. Does the treatment plant have post aeration? ✓ Yes _____ No

A.12. Effluent Testing Information. All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.

Outfall number: 001

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.53	s.u.			
pH (Maximum)	8.62	s.u.			
Flow Rate	1.0294	MGD	0.3377	MGD	1644
Temperature (Winter)	17.4	°C	14.4	°C	360
Temperature (Summer)	26.2	°C	25.1	°C	460

* For pH please report a minimum and a maximum daily value

POLLUTANT		MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
		Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.								
BIOCHEMICAL OXYGEN	BOD-5	-	-	-	-	-	-	-
DEMAND (Report one)	CBOD-5	8.06	mg/L	1.37	mg/L	706	SM18th5210B	2.00
~~FECAL COLIFORM~~ E.coli		1299.7	MPN	4.7	MPN	677	SM20th9223B	1.0
TOTAL SUSPENDED SOLIDS (TSS)		32.0	mg/L	3.7	mg/L	721	SM18th2540D	1.0

END OF PART A.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

BASIC APPLICATION INFORMATION

PART B. ADDITIONAL APPLICATION INFORMATION FOR APPLICANTS WITH A DESIGN FLOW GREATER THAN OR EQUAL TO 0.1 MGD (100,000 gallons per day).

All applicants with a design flow rate ≥ 0.1 mgd must answer questions B.1 through B.6. All others go to Part C (Certification).

B.1. Inflow and Infiltration. Estimate the average number of gallons per day that flow into the treatment works from inflow and/or infiltration.

Unkown gpd

Briefly explain any steps underway or planned to minimize inflow and infiltration.

Smoke testing of the collection system has been proposed to be funded in the budget of the next fiscal year.

B.2. Topographic Map. Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. (You may submit more than one map if one map does not show the entire area.)

a. The area surrounding the treatment plant, including all unit processes.

b. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.

c. Each well where wastewater from the treatment plant is injected underground.

d. Wells, springs, other surface water bodies, and drinking water wells that are: 1) within 1/4 mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.

e. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.

f. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, and/or disposed.

B.3. Process Flow Diagram or Schematic. Provide a diagram showing the processes of the treatment plant, including all bypass piping and all backup power sources or redundancy in the system. Also provide a water balance showing all treatment units, including disinfection (e.g, chlorination and dechlorination). The water balance must show daily average flow rates at influent and discharge points and approximate daily flow rates between treatment units. Include a brief narrative description of the diagram.

B.4. Operation/Maintenance Performed by Contractor(s).

Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a contractor? ____Yes ✓ No

If yes, list the name, address, telephone number, and status of each contractor and describe the contractor's responsibilities (attach additional pages if necessary).

Name: _____

Mailing Address: _____

_____

Telephone Number: _____

Responsibilities of Contractor: _____

B.5. Scheduled Improvements and Schedules of Implementation. Provide information on any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses to question B.5 for each. (If none, go to question B.6.)

a. List the outfall number (assigned in question A.9) for each outfall that is covered by this implementation schedule.

001

b. Indicate whether the planned improvements or implementation schedule are required by local, State, or Federal agencies.

____Yes ✓ No

c If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable).

_____

d. Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible.

Implementation Stage	Schedule MM / DD / YYYY	Actual Completion MM / DD / YYYY
– Begin construction	___/___/_____	___/___/_____
– End construction	07 / 01 / 2013	___/___/_____
– Begin discharge	___/___/_____	___/___/_____
– Attain operational level	___/___/_____	___/___/_____

e. Have appropriate permits/clearances concerning other Federal/State requirements been obtained? ✓ Yes ____No

Describe briefly: _____

B.6. EFFLUENT TESTING DATA (GREATER THAN O.1 MGD ONLY).

Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall Number: 001

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
	Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.							
AMMONIA (as N)	0.28	mg/L	0.09	mg/L	3	SM 20th 4500NH3G	0.10
CHLORINE (TOTAL RESIDUAL, TRC)	NA	NA	NA	NA	0		
DISSOLVED OXYGEN	17.18	mg/L	9.59	mg/L	1644	SM 18th 4500OG	0.01
TOTAL KJELDAHL NITROGEN (TKN)	89.20	mg/L	1.36	mg/L	720	SM 20th 4500N-org	0.10
NITRATE PLUS NITRITE NITROGEN	77.00	mg/L	22.44	mg/L	113	EPA 353.2	0.050
OIL and GREASE	48	mg/L	13	mg/L	5	EPA 1664A	5
PHOSPHORUS (Total)	3.75	mg/L	0.78	mg/L	720	HACH 8190	0.01
TOTAL DISSOLVED SOLIDS (TDS)	930	mg/L	763	mg/L	3	SM 20th 2540 C	10
OTHER							

END OF PART B.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:
Caroline County Regional Sewage Treatment Plant - VA0073504

Form Approved 1/14/99
OMB Number 2040-0086

BASIC APPLICATION INFORMATION

PART C. CERTIFICATION

All applicants must complete the Certification Section. Refer to instructions to determine who is an officer for the purposes of this certification. All applicants must complete all applicable sections of Form 2A, as explained in the Application Overview. Indicate below which parts of Form 2A you have completed and are submitting. By signing this certification statement, applicants confirm that they have reviewed Form 2A and have completed all sections that apply to the facility for which this application is submitted.

Indicate which parts of Form 2A you have completed and are submitting:

✓ Basic Application Information packet

Supplemental Application Information packet:

✓ Part D (Expanded Effluent Testing Data)

✓ Part E (Toxicity Testing: Biomonitoring Data)

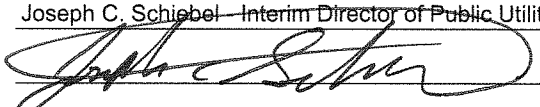
____ Part F (Industrial User Discharges and RCRA/CERCLA Wastes)

____ Part G (Combined Sewer Systems)

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title: Joseph C. Schiebel ~~Interim Director of Public Utilities~~

Signature: 

Telephone number: (804) 633-4390

Date signed: 12-20-11

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

SEND COMPLETED FORMS TO:

SUPPLEMENTAL APPLICATION INFORMATION

PART D. EXPANDED EFFLUENT TESTING DATA

Refer to the directions on the cover page to determine whether this section applies to the treatment works.

Effluent Testing: 1.0 mgd and Pretreatment Treatment Works. If the treatment works has a design flow greater than or equal to 1.0 mgd or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information and any other information required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analyses conducted using 40 CFR Part 136 methods. In addition, these data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS, AND HARDNESS.											
ANTIMONY	ND	mg/L	ND	kg/D	ND	mg/L	ND	kg/D	3	EPA 200.7/6010B	0.0050
ARSENIC	ND	mg/L	ND	kg/D	ND	mg/L	ND	kg/D	5	EPA 200.7/6010B	0.0020
BERYLLIUM	ND	mg/L	ND	kg/D	ND	mg/L	ND	kg/D	3	EPA 200.7/6010B	0.0010
CADMIUM	0.0013	mg/L	0.00229	kg/D	0.00043	mg/L	0.00061	kg/D	5	EPA 200.7/6010B	0.00050
CHROMIUM	ND	mg/L	ND	kg/D	ND	mg/L	ND	kg/D	5	EPA 200.8/6020	0.0010
COPPER	0.0087	mg/L	0.0097	kg/D	0.0034	mg/L	0.0044	kg/D	9	EPA 200.7/6010B	0.0010
LEAD	ND	mg/L	ND	kg/D	ND	mg/L	ND	kg/D	5	EPA 200.7/6010B	0.0010
MERCURY	ND	mg/L	ND	kg/D	ND	mg/L	ND	kg/D	5	EPA 245.1/7470A	0.00020
NICKEL	0.0065	mg/L	0.0097	kg/D	0.0023	mg/L	0.0032	kg/D	5	EPA 200.7/6010B	0.0050
SELENIUM	ND	mg/L	ND	kg/D	ND	mg/L	ND	kg/D	5	EPA 200.7/6010B	0.0050
SILVER	ND	mg/L	ND	kg/D	ND	mg/L	ND	kg/D	5	EPA 200.7/6010B	0.0010
THALLIUM	ND	mg/L	ND	kg/D	ND	mg/L	ND	kg/D	2 *	EPA 200.7/6010B	0.020
ZINC	0.096	mg/L	0.1467	kg/D	0.0464	mg/L	0.0632	kg/D	23	EPA 200.7/6010B	0.0050
CYANIDE	0.0063	mg/L	0.0083	kg/D	0.0013	mg/L	0.0018	kg/D	5	EPA 335.4	0.0050
TOTAL PHENOLIC COMPOUNDS	0.016	mg/L	0.028	kg/D	0.005	mg/L	0.007	kg/D	3	EPA 420.1	0.010
HARDNESS (AS $CaCO_3$)	550	mg/L	966.8	kg/D	403	mg/L	562.7	kg/D	3	SM 20th 2340C	2.0
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer.											
Titanium	ND	mg/L	ND	kg/D	ND	mg/L	ND	kg/D	2	EPA 200.7/6010B	0.0050

* Note: Contract lab erroneously tested for titanium instead of the requested thallium.

FACILITY NAME AND PERMIT NUMBER:
Caroline County Regional Sewage Treatment Plant - VA0073504

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OMB Number 2040-0086

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
VOLATILE ORGANIC COMPOUNDS.											
ACROLEIN	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	5.0
ACRYLONITRILE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	5.0
BENZENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
BROMOFORM	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
CARBON TETRACHLORIDE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
CLOROBENZENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
CHLORODIBROMO-METHANE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
CHLOROETHANE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
2-CHLORO-ETHYLVINYL ETHER	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
CHLOROFORM	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
DICHLOROBROMO-METHANE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
1,1-DICHLOROETHANE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
1,2-DICHLOROETHANE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
TRANS-1,2-DICHLORO-ETHYLENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
1,1-DICHLOROETHYLENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
1,2-DICHLOROPROPANE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
1,3-DICHLORO-PROPYLENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
ETHYLBENZENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
METHYL BROMIDE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
METHYL CHLORIDE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
METHYLENE CHLORIDE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
1,1,2,2-TETRACHLORO-ETHANE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
TETRACHLORO-ETHYLENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
TOLUENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0

FACILITY NAME AND PERMIT NUMBER:
Caroline County Regional Sewage Treatment Plant - VA0073504

Form Approved 1/14/99
OMB Number 2040-0086

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
1,1,1-TRICHLOROETHANE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
1,1,2-TRICHLOROETHANE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
TRICHLORETHYLENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
VINYL CHLORIDE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 624	1.0
Use this space (or a separate sheet) to provide information on other volatile organic compounds requested by the permit writer.											
ACID-EXTRACTABLE COMPOUNDS											
P-CHLORO-M-CRESOL	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
2-CHLOROPHENOL	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
2,4-DICHLOROPHENOL	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
2,4-DIMETHYLPHENOL	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
4,6-DINITRO-O-CRESOL	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
2,4-DINITROPHENOL	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	10
2-NITROPHENOL	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
4-NITROPHENOL	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	10
PENTACHLOROPHENOL	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	10
PHENOL	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
2,4,6-TRICHLOROPHENOL	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
Use this space (or a separate sheet) to provide information on other acid-extractable compounds requested by the permit writer.											
BASE-NEUTRAL COMPOUNDS.											
ACENAPHTHENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
ACENAPHTHYLENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
ANTHRACENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
BENZIDINE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
BENZO(A)ANTHRACENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
BENZO(A)PYRENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0

FACILITY NAME AND PERMIT NUMBER:
Caroline County Regional Sewage Treatment Plant - VA0073504

Form Approved 1/14/99
OMB Number 2040-0086

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
3,4 BENZO-FLUORANTHENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
BENZO(GHI)PERYLENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
BENZO(K)FLUORANTHENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
BIS (2-CHLOROETHOXY) METHANE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
BIS (2-CHLOROETHYL)-ETHER	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
BIS (2-CHLOROISO-PROPYL) ETHER	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
BIS (2-ETHYLHEXYL) PHTHALATE	7.3	ug/L	0.008	kg/D	2.4	ug/L	0.003	kg/D	3	EPA 625	5.0
4-BROMOPHENYL PHENYL ETHER	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
BUTYL BENZYL PHTHALATE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
2-CHLORONAPHTHALENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
4-CHLORPHENYL PHENYL ETHER	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
CHRYSENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
DI-N-BUTYL PHTHALATE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
DI-N-OCTYL PHTHALATE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
DIBENZO(A,H) ANTHRACENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
1,2-DICHLOROBENZENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
1,3-DICHLOROBENZENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
1,4-DICHLOROBENZENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
3,3-DICHLOROBENZIDINE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
DIETHYL PHTHALATE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
DIMETHYL PHTHALATE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
2,4-DINITROTOLUENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
2,6-DINITROTOLUENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
1,2-DIPHENYLHYDRAZINE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0

FACILITY NAME AND PERMIT NUMBER:
Caroline County Regional Sewage Treatment Plant - VA0073504

Form Approved 1/14/99
OMB Number 2040-0086

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
FLUORANTHENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
FLUORENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
HEXACHLOROBENZENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
HEXACHLOROBUTADIENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
HEXACHLOROCYCLO-PENTADIENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	10
HEXACHLOROETHANE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
INDENO(1,2,3-CD)PYRENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
ISOPHORONE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
NAPHTHALENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
NITROBENZENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
N-NITROSODI-N-PROPYLAMINE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
N-NITROSODI- METHYLAMINE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
N-NITROSODI-PHENYLAMINE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
PHENANTHRENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
PYRENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
1,2,4-TRICHLOROBENZENE	ND	ug/L	ND	kg/D	ND	ug/L	ND	kg/D	3	EPA 625	5.0
Use this space (or a separate sheet) to provide information on other base-neutral compounds requested by the permit writer.											
Use this space (or a separate sheet) to provide information on other pollutants (e.g., pesticides) requested by the permit writer.											

END OF PART D.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

SUPPLEMENTAL APPLICATION INFORMATION

PART E. TOXICITY TESTING DATA

POTWs meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points: 1) POTWs with a design flow rate greater than or equal to 1.0 mgd; 2) POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403); or 3) POTWs required by the permitting authority to submit data for these parameters.

- At a minimum, these results must include quarterly testing for a 12-month period within the past 1 year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute and/or chronic toxicity, depending on the range of receiving water dilution. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- In addition, submit the results of any other whole effluent toxicity tests from the past four and one-half years. If a whole effluent toxicity test conducted during the past four and one-half years revealed toxicity, provide any information on the cause of the toxicity or any results of a toxicity reduction evaluation, if one was conducted.
- If you have already submitted any of the information requested in Part E, you need not submit it again. Rather, provide the information requested in question E.4 for previously submitted information. If EPA methods were not used, report the reasons for using alternate methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E.

If no biomonitoring data is required, do not complete Part E. Refer to the Application Overview for directions on which other sections of the form to complete.

E.1. Required Tests.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years.

6 chronic 6 acute

E.2. Individual Test Data. Complete the following chart for each whole effluent toxicity test conducted in the last four and one-half years. Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.

	Test number:_____	Test number:_____	Test number:_____
a. Test information.			
Test species & test method number			
Age at initiation of test			
Outfall number			
Dates sample collected			
Date test started			
Duration			
b. Give toxicity test methods followed.			
Manual title			
Edition number and year of publication			
Page number(s)			
c. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used.			
24-Hour composite			
Grab			
d. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each)			
Before disinfection			
After disinfection			
After dechlorination			

	Test number:_____	Test number:_____	Test number:_____
e. Describe the point in the treatment process at which the sample was collected.			
Sample was collected:			
f. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both.			
Chronic toxicity			
Acute toxicity			
g. Provide the type of test performed.			
Static			
Static-renewal			
Flow-through			
h. Source of dilution water. If laboratory water, specify type; if receiving water, specify source.			
Laboratory water			
Receiving water			
i. Type of dilution water. It salt water, specify "natural" or type of artificial sea salts or brine used.			
Fresh water			
Salt water			
j. Give the percentage effluent used for all concentrations in the test series.			
k. Parameters measured during the test. (State whether parameter meets test method specifications)			
pH			
Salinity			
Temperature			
Ammonia			
Dissolved oxygen			
l. Test Results.			
Acute:			
Percent survival in 100% effluent	%	%	%
LC_{50}			
95% C.I.	%	%	%
Control percent survival	%	%	%
Other (describe)			

Chronic:			
NOEC	%	%	%
IC_{25}	%	%	%
Control percent survival	%	%	%
Other (describe)			

m. Quality Control/Quality Assurance.

Is reference toxicant data available?			
Was reference toxicant test within acceptable bounds?			
What date was reference toxicant test run (MM/DD/YYYY)?			
Other (describe)			

E.3. Toxicity Reduction Evaluation. Is the treatment works involved in a Toxicity Reduction Evaluation?

____Yes____No If yes, describe: _____

_____

_____

E.4. Summary of Submitted Biomonitoring Test Information. If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results.

Date submitted: _____ (MM/DD/YYYY) 11/27/2007, 04/08/2008, 06/09/2008, 01/07/2010, 01/07/2011

Summary of results: (see instructions)

_____

_____

END OF PART E.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

SUPPLEMENTAL APPLICATION INFORMATION

PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete Part F.

GENERAL INFORMATION:

F.1. Pretreatment Program. Does the treatment works have, or is it subject to, an approved pretreatment program?

✓ Yes ___ No

F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works.

a. Number of non-categorical SIUs. 3

b. Number of CIUs. 0

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Blue Beacon

Mailing Address: P.O. Box 204
Ruther Glen, VA 22546

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Non-Categorical Truck Washing (does not clean interiors of tanks).

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Truck Washing

Raw material(s): Brighteners, Cleansers, Polishes and Protectorants

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

15,000 gpd (✓ continuous or ___ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

unknown gpd (✓ continuous or ___ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ✓ Yes ___ No

b. Categorical pretreatment standards ___ Yes ✓ No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

✓ Yes ____ No If yes, describe each episode.

Blue Beacon contributed to the March 2009 violation of TSS as previously reported on April, 8 2009 to VA DEQ.

RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:

F.9. RCRA Waste. Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe? ____ Yes ✓ No (go to F.12.)

F.10. Waste Transport. Method by which RCRA waste is received (check all that apply):

_____ Truck _____ Rail _____ Dedicated Pipe

F.11. Waste Description. Give EPA hazardous waste number and amount (volume or mass, specify units).

EPA Hazardous Waste Number	Amount	Units

CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:

F.12. Remediation Waste. Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

____ Yes (complete F.13 through F.15.) ✓ No

Provide a list of sites and the requested information (F.13 - F.15.) for each current and future site.

F.13. Waste Origin. Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

F.14. Pollutants. List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary).

F.15. Waste Treatment.

a. Is this waste treated (or will it be treated) prior to entering the treatment works?

____ Yes ____ No

If yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?

____ Continuous ____ Intermittent If intermittent, describe discharge schedule.

END OF PART F.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

SUPPLEMENTAL APPLICATION INFORMATION

PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete Part F.

GENERAL INFORMATION:

F.1. Pretreatment Program. Does the treatment works have, or is it subject to, an approved pretreatment program?

✓ Yes ___ No

F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works.

a. Number of non-categorical SIUs. 3

b. Number of CIUs. 0

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Patriot Farms / Flying J

Mailing Address: P.O. Box 148
Ruther Glen, VA 22546

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Retail motor fuel and Maintenance Facility.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Fuel and Lubricants

Raw material(s): Diesel, Gasoline, Motor oil, and other lubricants.

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

unknown gpd (___ continuous or ✓ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

21,200 gpd (✓ continuous or ___ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ✓ Yes ___ No

b. Categorical pretreatment standards ___ Yes ✓ No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

____Yes ✓ No If yes, describe each episode.

RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:

F.9. RCRA Waste. Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe? ____Yes ✓ No (go to F.12.)

F.10. Waste Transport. Method by which RCRA waste is received (check all that apply):

_____Truck _____Rail _____Dedicated Pipe

F.11. Waste Description. Give EPA hazardous waste number and amount (volume or mass, specify units).

EPA Hazardous Waste Number	Amount	Units

CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:

F.12. Remediation Waste. Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

____Yes (complete F.13 through F.15.) ✓ No

Provide a list of sites and the requested information (F.13 - F.15.) for each current and future site.

F.13. Waste Origin. Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

F.14. Pollutants. List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary).

F.15. Waste Treatment.

a. Is this waste treated (or will it be treated) prior to entering the treatment works?

____Yes ____No

If yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?

____Continuous ____Intermittent If intermittent, describe discharge schedule.

END OF PART F.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

SUPPLEMENTAL APPLICATION INFORMATION

PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete Part F.

GENERAL INFORMATION:

F.1. Pretreatment Program. Does the treatment works have, or is it subject to, an approved pretreatment program?

✓ Yes ___ No

F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works.

a. Number of non-categorical SIUs. 3

b. Number of CIUs. 0

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Mr. Fuel Travel Center

Mailing Address: P.O. Box 340
Ruther Glen, VA 22546

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Retail motor fuel and convenience facility.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Fuel

Raw material(s): Diesel and Gasoline

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

unknown gpd (___ continuous or ✓ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

unknown gpd (✓ continuous or ___ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ✓ Yes ___ No

b. Categorical pretreatment standards ___ Yes ✓ No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

____Yes ✓ No If yes, describe each episode.

RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:

F.9. RCRA Waste. Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe? ____Yes ✓ No (go to F.12.)

F.10. Waste Transport. Method by which RCRA waste is received (check all that apply):

_____Truck _____Rail _____Dedicated Pipe

F.11. Waste Description. Give EPA hazardous waste number and amount (volume or mass, specify units).

EPA Hazardous Waste Number	Amount	Units

CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:

F.12. Remediation Waste. Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

____Yes (complete F.13 through F.15.) ✓ No

Provide a list of sites and the requested information (F.13 - F.15.) for each current and future site.

F.13. Waste Origin. Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

F.14. Pollutants. List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary).

F.15. Waste Treatment.

a. Is this waste treated (or will it be treated) prior to entering the treatment works?

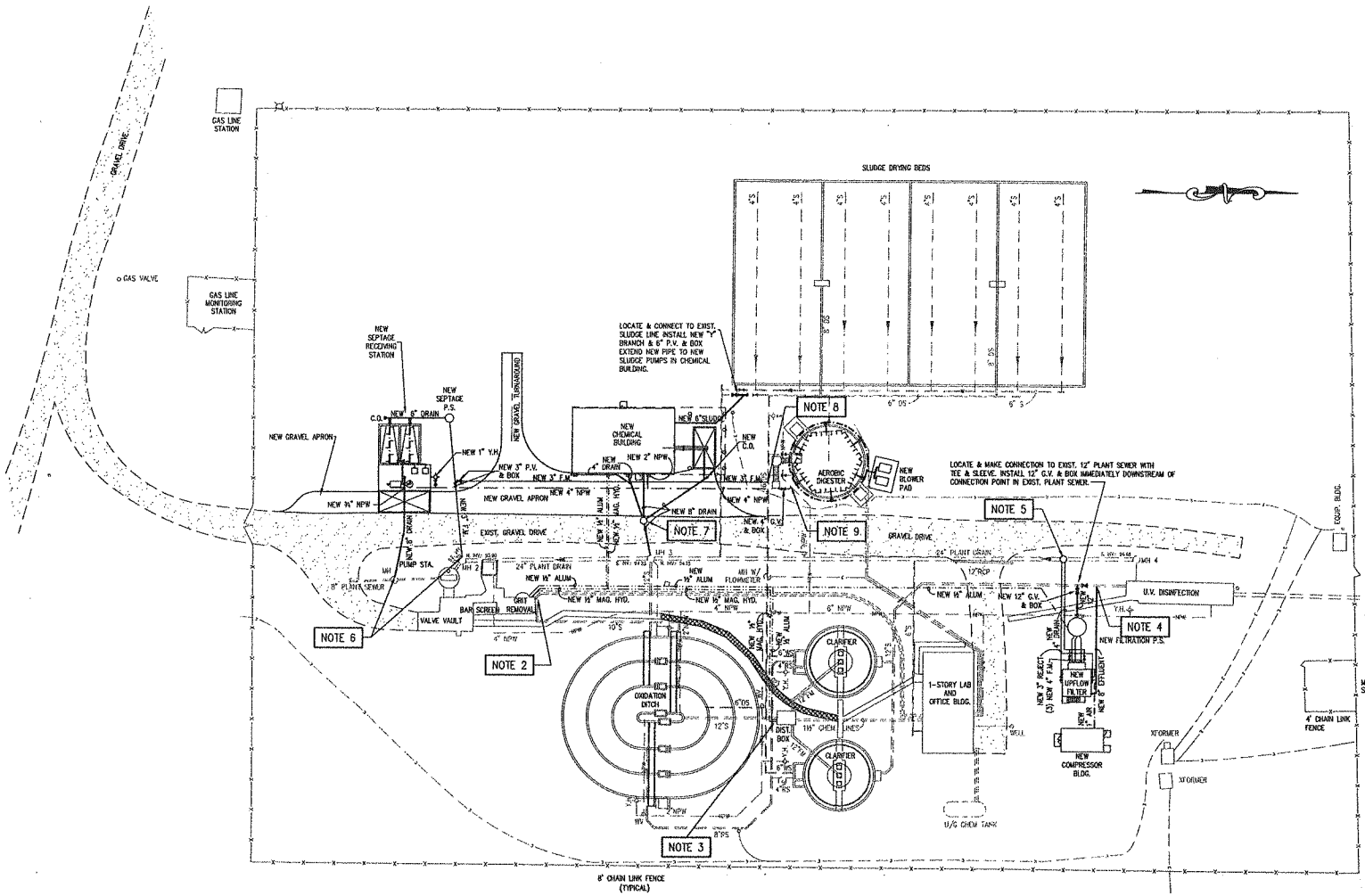
____Yes ____No

If yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?

____Continuous ____Intermittent If intermittent, describe discharge schedule.

END OF PART F.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE



PIPING NOTES

1. ALL NEW PIPING SHALL BE INSTALLED WITH MIN. 3.5' OF COVER, UNLESS SHOWN OTHERWISE ON PLANS.
2. RUN NEW ALUM. & MAG. HYD. PIPES TO EXIST. GRIT REMOVAL UNIT EFFLUENT CHANNEL. PIPING TO RUN UP OVER WALL, PROVIDE BALL VALVE, ELL. DOWN & TERMINATE AT ELEVATION 124.5. PIPING TO BE INSTALLED, HEAT TRACED & INSULATED FROM GRADE TO WHERE PIPING TURNS DOWN INTO TROUGH. UTILIZE EXIST. ELECTRICAL SERVICE FOR NEW HEAT TRACING.
3. RUN NEW ALUM. & MAG. HYD. PIPES TO EXIST. DIST. BOX INFLUENT COMPARTMENT. PIPING TO RUN UP OVER WALL, PROVIDE BALL VALVE, ELL. DOWN & TERMINATE AT ELEVATION 124.5. PIPING TO BE INSTALLED, HEAT TRACED & INSULATED FROM GRADE TO WHERE PIPING TURNS DOWN INTO COMPARTMENT. UTILIZE EXIST. ELECTRICAL SERVICE FOR NEW HEAT TRACING.
4. EXTEND PIPING FROM STRUCTURE TO EXISTING SEWER. MAINTAIN SLOPE FROM STRUCTURE TO SEWER. LOCATE & MAKE CONNECTION TO EXISTING SEWER WITH TEE & SLEEVE.
5. CONSTRUCT NEW MH OVER EXISTING SEWER EXTEND PIPING FROM STRUCTURE TO NEW MH & CONNECT. MAINTAIN SLOPE FROM STRUCTURE TO NEW MH.
6. EXTEND PIPING FROM STRUCTURE TO EXISTING MH. CORE EXISTING MH & SEAL WITH LINK SEAL. MAINTAIN SLOPE ON DRAIN PIPING FROM STRUCTURE TO MH.
7. CONSTRUCT NEW MH, RUN DRAIN PIPING FROM CHEMICAL BLDG., CHEMICAL SPILL PAD & TRUCK SLAB TO NEW MH. NEW MH INV. TO BE 110.00. EXTEND NEW 6" DRAIN PIPING FROM NEW MH TO EXISTING MH. MAINTAIN MIN. SLOPE OF 0.4% GRADE ON NEW 6" DRAIN. INVERTS OF NEW PIPES AT NEW MH SHALL BE, 6" FROM CHEMICAL BUILDING 111.50, 4" FROM CHEMICAL SPILL PAD 110.50, 8" FROM TRUCK SLAB 110.50.
8. LOCATE EXISTING SLUDGE LINE AND CONNECT NEW 3" F.M. FROM NEW SEPTAGE P.S. TO EXISTING SLUDGE LINE.
9. LOCATE EXISTING NPW LINE AND CONNECT NEW 4" NPW LINE.
10. ALL NEW ALUM & MAG. HYD. LINES SHALL HAVE DUPLICATE LINES RUN FOR FUTURE USE. THE DUPLICATE LINES SHALL EXTEND INTO NEW CHEMICAL BUILDING AND BE CAPPED FOR FUTURE CONNECTION. THE DUPLICATE LINES SHALL FOLLOW EACH NEW CHEMICAL LINE TO THE POINT OF DISCHARGE, PROVIDE BALL VALVE AND TERMINATE AT THE POINT OF DISCHARGE WITH A REMOVABLE CAP. THE DUPLICATE LINES DO NOT REQUIRE HEAT TRACE.

NOTE:
THE EXACT LOCATION & SIZE OF UNDERGROUND UTILITIES IS UNKNOWN. UNDERGROUND UTILITIES, IN ADDITION TO THOSE SHOWN, MAY EXIST. CONTRACTOR SHALL VERIFY BEFORE STARTING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS IMMEDIATELY.

PIPING LEGEND

- NEW AIR PIPING
- EXIST. CHEMICAL LINE
- NEW CHEMICAL LINE
- EXIST. DIGESTED SLUDGE
- EXIST. NON-POTABLE WATER
- NEW NON-POTABLE WATER
- EXIST. PLANT DRAIN
- EXIST. PLANT SEWER
- NEW PLANT SEWER
- EXIST. RETURN SLUDGE
- EXIST. SANITARY FORCE MAIN
- EXIST. U/G TELEPHONE
- EXIST. WASTE SLUDGE
- EXIST WATER
- EXIST. U/G ELECTRIC

REV. NO.	DATE	DESCRIPTION	BY
3	9-11-00	GENERAL REVISIONS	LGG
2	6-16-00	GENERAL REVISIONS	LGG
1	4-6-00	GENERAL REVISIONS	LLS

REVISIONS

COMMONWEALTH OF VIRGINIA
GARY ALAN MOSHIER
No. 8219
01/04/01
PROFESSIONAL ENGINEER

R. STUART ROYER & ASSOCIATES, INC.
CONSULTING ENGINEERS
RICHMOND, VIRGINIA

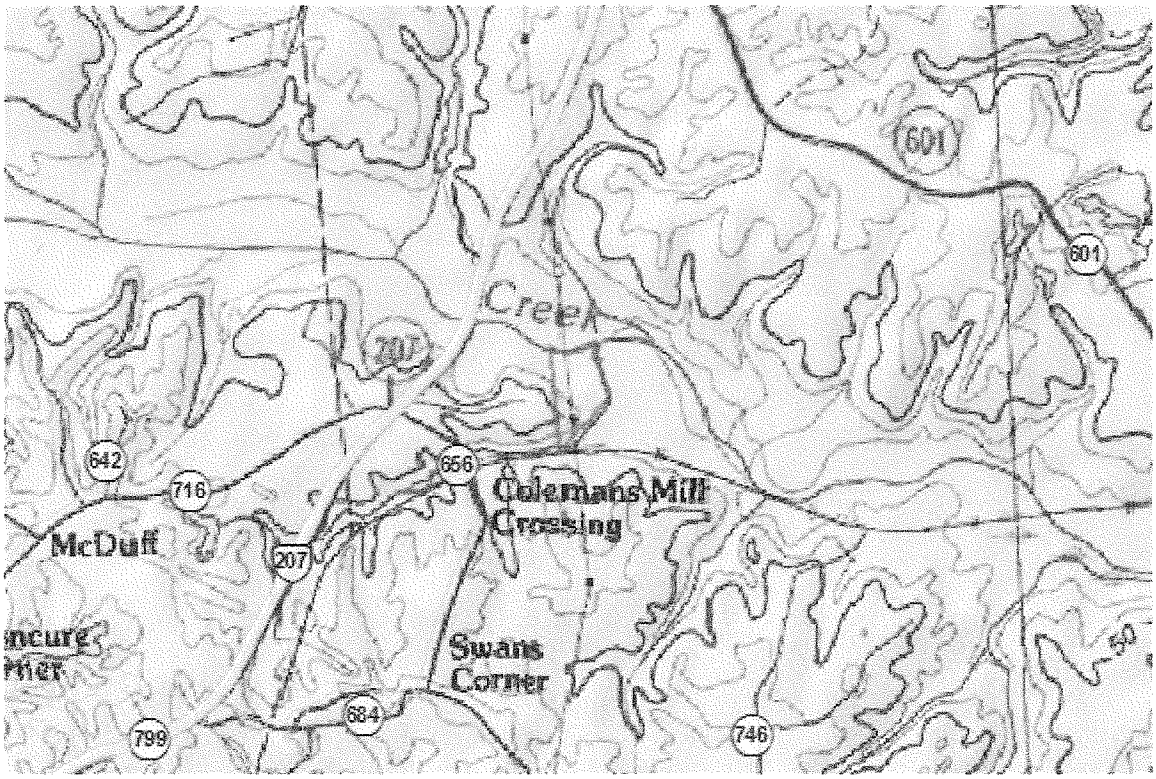
CAROLINE COUNTY, VIRGINIA
REGIONAL WASTEWATER TREATMENT
PLANT UPGRADE

PIPING PLAN

DATE: DECEMBER 1999
SCALE: 1" = 30'
DESIGNED: W.L.R.
DRAWN: L.L.S.
CHECKED: R.W.

DRAWING NO.
9915

C-3 OF 30 SHEETS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707
642
716
656
Colemans Mill
Crossing
McDuff
207
Swans
Corner
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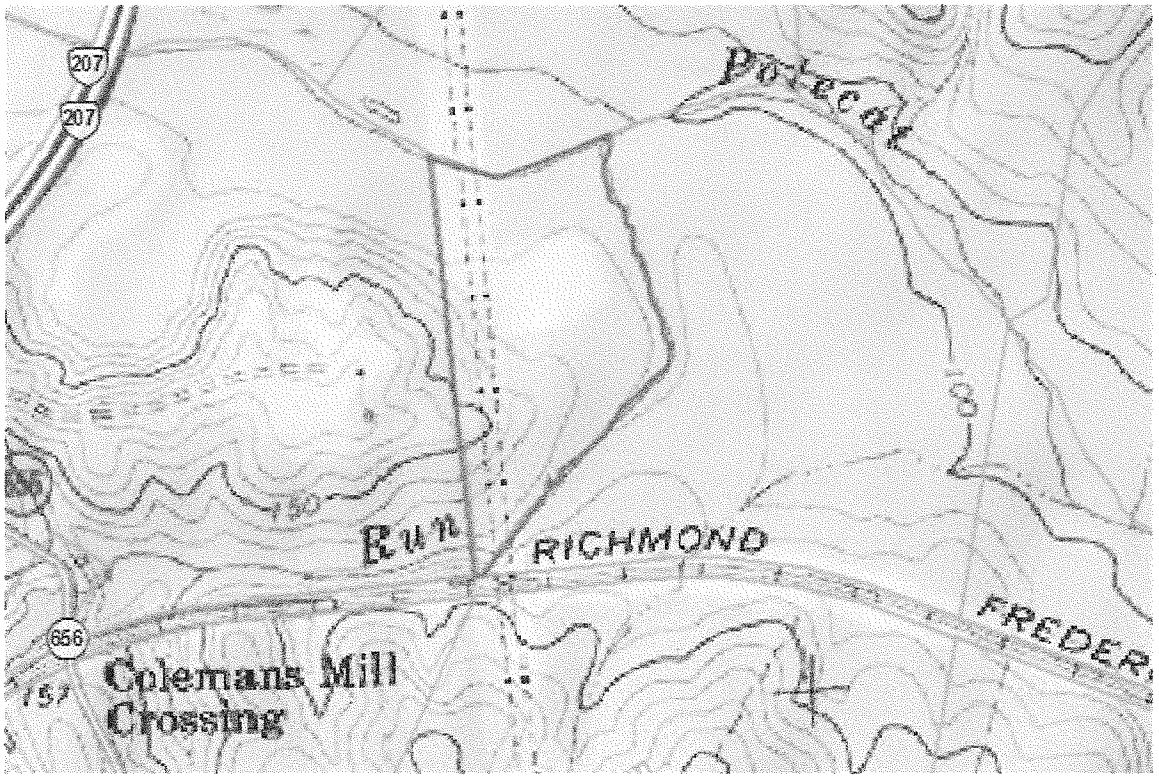
799
746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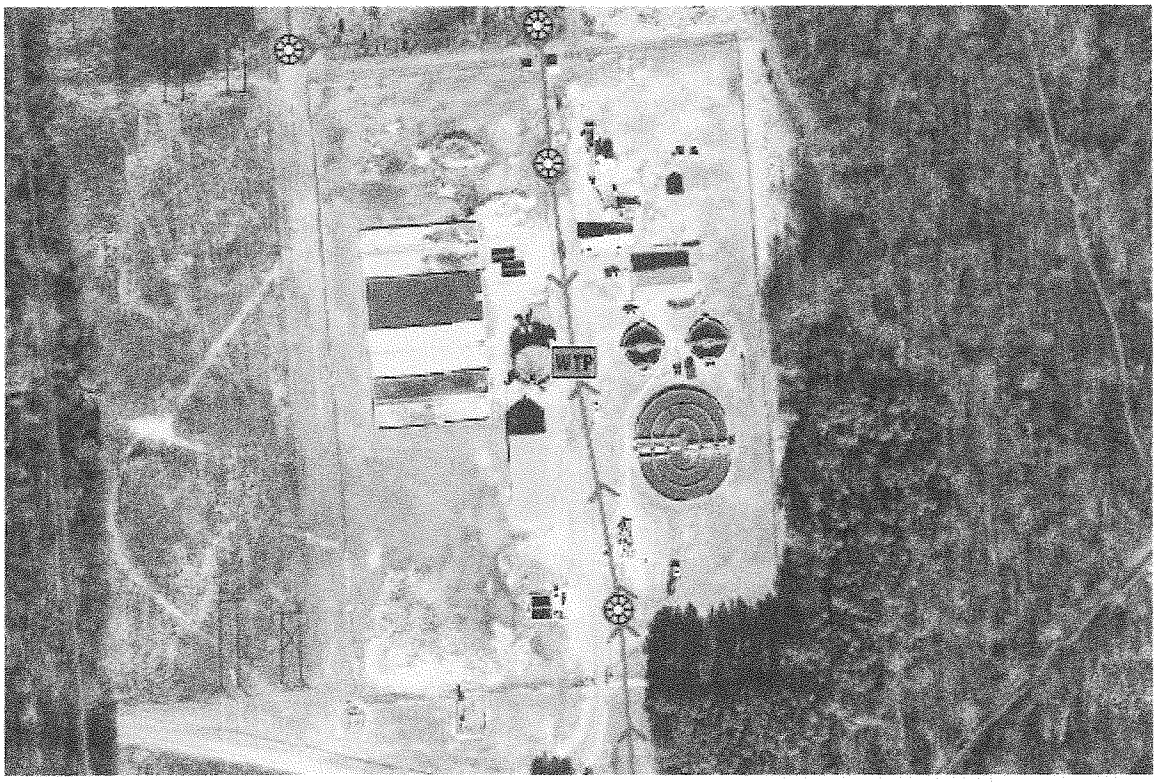
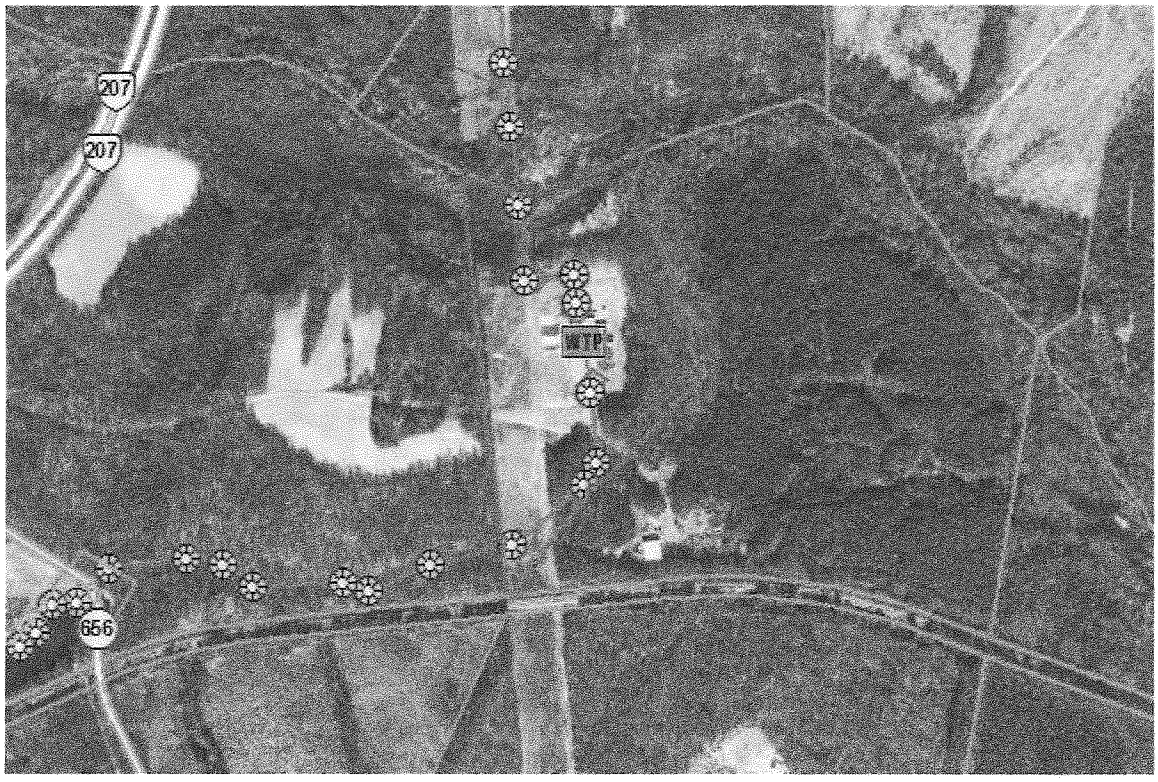
Potomac
Run
RICHMOND
656
Colemans Mill
Crossing


207
207
656


WTP


207
207
WTP
656

County of Caroline
Joseph C. Schiebel
Superintendent
Public Utilities
233 West Broaddus Avenue
P.O. Box 424
Bowling Green, Virginia 22427
(804) 633-4390 Main
(804) 633-1190 Fax
E-mail: jschiebel@co.caroline.va.us

January 25, 2012

Department of Environmental Quality
Northern Virginia Regional Office
13901 Crown Court
Woodbridge, Va. 22193

Re: VPDES Permit Application Addendum
Sewage Sludge Permit Application

Please find attached a copy of the Sewage Sludge Permit Application for the Caroline County Regional Wastewater Treatment Plant.

If you have any questions or comments please feel free to contact me.

Sincerely,

Joseph C. Schiebel
Caroline County, VA
All-America City
2009

VPDES Permit Application Addendum

1. **Entity to whom the permit is to be issued:** Caroline County Public Utilities

Who will be legally responsible for the wastewater treatment facilities and compliance with the permit? This may or may not be the facility or property owner.

2. **Is this facility located within city or town boundaries?** Yes ☐ No ☒

3. **Provide the tax map parcel number for the land where the discharge is located.** 69-A-40C

4. **For the facility to be covered by this permit, how many acres will be disturbed during the next five years due to new construction activities?** 2.58

5. **What is the design average effluent flow of this facility?** 0.5 MGD
For industrial facilities, provide the max. 30-day average production level, include units:

In addition to the design flow or production level, should the permit be written with limits for any other discharge flow tiers or production levels? Yes ☒ No ☐
If "Yes", please identify the other flow tiers (in MGD) or production levels:
1.5 / 3.0

Please consider the following questions for both the flow tiers and the production levels (if applicable): Do you plan to expand operations during the next five years? Is your facility's design flow considerably greater than your current flow?

6. **Nature of operations generating wastewater:**
Domestic and light industrial

40 % of flow from domestic connections/sources
Number of private residences to be served by the treatment works: 535

60 % of flow from non-domestic connections/sources

7. **Mode of discharge:** ☒ Continuous ☐ Intermittent ☐ Seasonal
Describe frequency and duration of intermittent or seasonal discharges:

8. **Identify the characteristics of the receiving stream at the point just above the facility's discharge point:**
X Permanent stream, never dry
___ Intermittent stream, usually flowing, sometimes dry
___ Ephemeral stream, wet-weather flow, often dry
___ Effluent-dependent stream, usually or always dry without effluent flow
___ Lake or pond at or below the discharge point
___ Other:

9. **Approval Date(s):**
O & M Manual October 2003 **Sludge/Solids Management Plan** June 2007

Have there been any changes in your operations or procedures since the above approval dates? Yes ☒ No ☐

VPDES SEWAGE SLUDGE PERMIT APPLICATION FORM

SCREENING INFORMATION

This application is divided into four sections. Section A pertains to all applicants. The applicability of Sections B, C and D depends on your facility's sewage sludge use or disposal practices. The information provided on this page will help you determine which sections to fill out.

1. All applicants must complete Section A (General Information).

2. Does this facility generate sewage sludge? __X__ Yes _____ No

   Does this facility derive a material from sewage sludge? _____ Yes __X__ No

   If you answered "Yes" to either, complete Section B (Generation Of Sewage Sludge or Preparation Of A Material Derived From Sewage Sludge).

3. Does this facility apply sewage sludge to the land? _____ Yes __X__ No

   Is sewage sludge from this facility applied to the land? _____ Yes __X__ No

   If you answer "No" to all above, skip Section C.

   If you answered "Yes" to either, answer the following three questions:

   a. Does the sewage sludge from this facility meet the ceiling concentrations, pollutant concentrations, Class A pathogen reduction requirements and one of the vector attraction reduction requirements 1-8, as identified in the instructions? _____ Yes _____ No

   b. Is sewage sludge from this facility placed in a bag or other container for sale or give-away for application to the land? _____ Yes _____ No

   c. Is sewage sludge from this facility sent to another facility for treatment or blending? _____ Yes _____ No

   If you answered "No" to all three, complete Section C (Land Application Of Bulk Sewage Sludge).

   If you answered "Yes" to a, b or c, skip Section C.

4. Do you own or operate a surface disposal site? _____ Yes __X__ No

   If "Yes", complete Section D (Surface Disposal).

SECTION A. GENERAL INFORMATION

All applicants must complete this section.

1. **Facility Information.**
   a. Facility name: Caroline County Regional WWTP, Upper Polecat Creek Facility
   b. Contact person: Mr. Joseph C. Schiebel
      Title: Interim Director, Caroline County Department of Public Utilities
      Phone: (804) 633-1190
   c. Mailing address:
      Street or P.O. Box: P.O. Box 424
      City or Town: Bowling Green State: VA Zip: 22427
   d. Facility location:
      Street or Route #: 22101 Rogers Clark Blvd.
      County: Caroline
      City or Town: Ruther Glen State: VA Zip: 22546
   e. Is this facility a Class I sludge management facility? __X__ Yes _____ No
   f. Facility design flow rate: 0.5 mgd
   g. Total population served: _____
   h. Indicate the type of facility:
      __X__ Publicly owned treatment works (POTW)
      _____ Privately owned treatment works
      _____ Federally owned treatment works
      _____ Blending or treatment operation
      _____ Surface disposal site
      _____ Other (describe): _____

2. **Applicant Information.** If the applicant is different from the above, provide the following:
   a. Applicant name: _____
   b. Mailing address:
      Street or P.O. Box: _____
      City or Town: _____ State: _____ Zip: _____
   c. Contact person: _____
      Title: _____
      Phone: (_____) _____
   d. Is the applicant the owner or operator (or both) of this facility?
      __X__ owner __X__ operator
   e. Should correspondence regarding this permit be directed to the facility or the applicant?
      __X__ facility __X__ applicant

3. **Permit Information.**
   a. Facility's VPDES permit number (if applicable): VA0073504
   b. List on this form or an attachment, all other federal, state or local permits or construction approvals received or applied for that regulate this facility's sewage sludge management practices:

Permit Number:	Type of Permit:
_____	_____
_____	_____

4. **Indian Country.** Does any generation, treatment, storage, application to land or disposal of sewage sludge from this facility occur in Indian Country? _____ Yes __X__ No If "Yes", describe:

_____

5. **Topographic Map.** Provide a topographic map or maps (or other appropriate maps if a topographic map is unavailable) that shows the following information. Maps should include the area one mile beyond all property boundaries of the facility:
   a. Location of all sewage sludge management facilities, including locations where sewage sludge is generated, stored, treated, or disposed.
   b. Location of all wells, springs, and other surface water bodies listed in public records or otherwise known to the applicant within 1/4 mile of the property boundaries.

6. **Line Drawing.** Provide a line drawing and/or a narrative description that identifies all sewage sludge processes that will be employed during the term of the permit including all processes used for collecting, dewatering, storing, or treating sewage sludge, the destination(s) of all liquids and solids leaving each unit, and all methods used for pathogen reduction and vector attraction reduction.

7. **Contractor Information.** Are any operational or maintenance aspects of this facility related to sewage sludge generation, treatment, use or disposal the responsibility of a contractor? _____ Yes __X__ No

   If "Yes", provide the following for each contractor (attach additional pages if necessary).

   Name: _____

   Mailing address:

   Street or P.O. Box: _____

   City or Town: _____ State: _____ Zip: _____

   Phone: (_____) _____

   Contractor's Federal, State or Local Permit Number(s) applicable to this facility's sewage sludge:

   _____

   If the contractor is responsible for the use and/or disposal of the sewage sludge, provide a description of the service to be provided to the applicant and the respective obligations of the applicant and the contractor(s).

8. **Pollutant Concentrations.** Using the table below or a separate attachment, provide sewage sludge monitoring data for the pollutants which limits in sewage sludge have been established in 9 VAC 25-31-10 et seq. for this facility's expected use or disposal practices. All data must be based on three or more samples taken at least one month apart and must be no more than four and one-half years old.

POLLUTANT	CONCENTRATION (mg/kg dry weight)	SAMPLE DATE	ANALYTICAL METHOD	DETECTION LEVEL FOR ANALYSIS
Arsenic				
Cadmium				
Chromium				
Copper				
Lead				
Mercury				
Molybdenum				
Nickel				
Selenium				
Zinc				

9. **Certification.** Read and submit the following certification statement with this application. Refer to the instructions to determine who is an officer for purposes of this certification. Indicate which parts of the application you have completed and are submitting:

__X__ Section A (General Information)

__X__ Section B (Generation of Sewage Sludge or Preparation of a Material Derived from Sewage Sludge)

_____ Section C (Land Application of Bulk Sewage Sludge)

_____ Section D (Surface Disposal)

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name and official title Joseph C. Schiebel, Interim Director of Caroline County Public Utilities

Signature _____ Date Signed 1-26-12

Telephone number (804) 633-4390

Upon request of the department, you must submit any other information necessary to assess sewage sludge use or disposal practices at your facility or identify appropriate permitting requirements.

SECTION B. GENERATION OF SEWAGE SLUDGE OR PREPARATION OF A MATERIAL DERIVED FROM SEWAGE SLUDGE

Complete this section if your facility generates sewage sludge or derives a material from sewage sludge

1. **Amount Generated On Site.**
   Total dry metric tons per 365-day period generated at your facility: ____115_____ dry metric tons

2. **Amount Received from Off Site.** If your facility receives sewage sludge from another facility for treatment, use or disposal, provide the following information for each facility from which sewage sludge is received. If you receive sewage sludge from more than one facility, attach additional pages as necessary.

   a. Facility name: _____

   b. Contact Person: _____

      Title: _____

      Phone: (_____) _____

   c. Mailing address:

      Street or P.O. Box: _____

      City or Town: _____ State: _____ Zip: _____

   d. Facility location: _____

      (not P.O. Box) _____

   e. Total dry metric tons per 365-day period received from this facility: _____ dry metric tons

   f. Describe, on this form or on another sheet of paper, any treatment processes known to occur at the off-site facility, including blending activities and treatment to reduce pathogens or vector attraction characteristics:

      _____

      _____

3. **Treatment Provided at Your Facility.**

   a. Which class of pathogen reduction is achieved for the sewage sludge at your facility?
      _____ Class A _____ Class B __X__ Neither or unknown

   b. Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce pathogens in sewage sludge: Air Drying via Sand Beds, and Aerobic Digestion.

      _____

   c. Which vector attraction reduction option is met for the sewage sludge at your facility?
      _____ Option 1 (Minimum 38 percent reduction in volatile solids)
      _____ Option 2 (Anaerobic process, with bench-scale demonstration)
      _____ Option 3 (Aerobic process, with bench-scale demonstration)
      _____ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
      _____ Option 5 (Aerobic processes plus raised temperature)
      _____ Option 6 (Raise pH to 12 and retain at 11.5)
      _____ Option 7 (75 percent solids with no unstabilized solids)
      _____ Option 8 (90 percent solids with unstabilized solids)
      __X__ None or unknown

   d. Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce vector attraction properties of sewage sludge: Aerobic Digestion with a SRT of 12-17 Days.

      _____

   e. Describe, on this form or another sheet of paper, any other sewage sludge treatment activities, including blending, not identified in a - d above: Dewatering via Belt Filter Press

      _____

4. **Preparation of Sewage Sludge Meeting Ceiling and Pollutant Concentrations, Class A Pathogen Requirements and One of Vector Attraction Reduction Options 1-8 (EQ Sludge).**

   (If sewage sludge from your facility does not meet all of these criteria, skip Question 4.)

   a. Total dry metric tons per 365-day period of sewage sludge subject to this section that is applied to the land:

   _____ dry metric tons

   b. Is sewage sludge subject to this section placed in bags or other containers for sale or give-away?

   _____ Yes _____ No

5. **Sale or Give-Away in a Bag or Other Container for Application to the Land.**

   (Complete this question if you place sewage sludge in a bag or other container for sale or give-away prior to land application. Skip this question if sewage sludge is covered in Question 4.)

   a. Total dry metric tons per 365-day period of sewage sludge placed in a bag or other container at your facility for sale or give-away for application to the land: _____ dry metric tons

   b. Attach, with this application, a copy of all labels or notices that accompany the sewage sludge being sold or given away in a bag or other container for application to the land.

6. **Shipment Off Site for Treatment or Blending.**

   (Complete this question if sewage sludge from your facility is sent to another facility that provides treatment or blending. This question does not apply to sewage sludge sent directly to a land application or surface disposal site. Skip this question if the sewage sludge is covered in Questions 4 or 5. If you send sewage sludge to more than one facility, attach additional sheets as necessary.)

   a. Receiving facility name: _____

   b. Facility contact: _____

   Title: _____

   Phone: (_____) _____

   c. Mailing address:

   Street or P.O. Box: _____

   City or Town: _____ State: _____ Zip: _____

   d. Total dry metric tons per 365-day period of sewage sludge provided to receiving facility:

   _____ dry metric tons

   e. List, on this form or an attachment, the receiving facility's VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the receiving facility's sewage sludge use or disposal practices:

Permit Number:	Type of Permit:
_____	_____
_____	_____

   f. Does the receiving facility provide additional treatment to reduce pathogens in sewage sludge from your facility?

   _____ Yes _____ No

   Which class of pathogen reduction is achieved for the sewage sludge at the receiving facility?

   _____ Class A _____ Class B _____ Neither or unknown

   Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce pathogens in sewage sludge: _____

   _____

   _____

   g. Does the receiving facility provide additional treatment to reduce vector attraction characteristics of the sewage sludge? _____ Yes _____ No

   Which vector attraction reduction option is met for the sewage sludge at the receiving facility?

   _____ Option 1 (Minimum 38 percent reduction in volatile solids)

   _____ Option 2 (Anaerobic process, with bench-scale demonstration)

_____ Option 3 (Aerobic process, with bench-scale demonstration)

_____ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)

_____ Option 5 (Aerobic processes plus raised temperature)

_____ Option 6 (Raise pH to 12 and retain at 11.5)

_____ Option 7 (75 percent solids with no unstabilized solids)

_____ Option 8 (90 percent solids with unstabilized solids)

_____ None unknown

Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce vector attraction properties of sewage sludge: _____

_____

h. Does the receiving facility provide any additional treatment or blending not identified in f or g above?
_____ Yes _____ No

If "Yes", describe, on this form or another sheet of paper, the treatment processes not identified in f or g above:

_____

_____

i. If you answered "Yes" to f, g or h above, attach a copy of any information you provide to the receiving facility to comply with the "notice and necessary information" requirement of 9 VAC 25-31-530.G.

j Does the receiving facility place sewage sludge from your facility in a bag or other container for sale or give-away for application to the land? _____ Yes _____ No

If "Yes", provide a copy of all labels or notices that accompany the product being sold or given away.

k. Will the sewage sludge be transported to the receiving facility in a truck-mounted watertight tank normally used for such purposes? _____ Yes _____ No. If "No", provide description and specification on the vehicle used to transport the sewage sludge to the receiving facility.

Show the haul route(s) on a location map or briefly describe the haul route below and indicate the days of the week and the times of the day sewage sludge will be transported. _____

_____

_____

7. Land Application of Bulk Sewage Sludge.

(Complete Question 7.a if sewage sludge from your facility is applied to the land, unless the sewage sludge is covered in Questions 4, 5 or 6. Complete Question 7.b, c & d only if you are responsible for land application of sewage sludge.)

a. Total dry metric tons per 365-day period of sewage sludge applied to all land application sites:

_____ dry metric tons

b. Do you identify all land application sites in Section C of this application? _____ Yes _____ No

If "No", submit a copy of the Land Application Plan (LAP) with this application (LAP should be prepared in accordance with the instructions).

c. Are any land application sites located in States other than Virginia? _____ Yes _____ No

If "Yes", describe, on this form or on another sheet of paper, how you notify the permitting authority for the States where the land application sites are located. Provide a copy of the notification.

_____

_____

d. Attach a copy of any information you provide to the owner or lease holder of the land application sites to comply with the "notice and necessary" information requirement of 9 VAC 25-31-530 F and/or H (Examples may be obtained in Appendix IV).

8. Surface Disposal.

(Complete Question 8 if sewage sludge from your facility is placed on a surface disposal site.)

a. Total dry metric tons per 365-day period of sewage sludge from your facility placed on all surface disposal sites: _____ dry metric tons

b. Do you own or operate all surface disposal sites to which you send sewage sludge for disposal?
_____ Yes _____ No

If "No", answer questions c - g for each surface disposal site that you do not own or operate. If you send sewage sludge to more than one surface disposal site, attach additional pages as necessary.

c. Site name or number: _____

d. Contact person: _____

Title: _____

Phone: (_____) _____

Contact is: _____ Site Owner _____ Site operator

e. Mailing address:

Street or P.O. Box: _____

City or Town: _____ State: _____ Zip: _____

f. Total dry metric tons per 365-day period of sewage sludge from your facility placed on this surface disposal site: _____ dry metric tons

g. List, on this form or an attachment, the surface disposal site VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the sewage sludge use or disposal practices at the surface disposal site:

Permit Number:	Type of Permit:
_____	_____
_____	_____

9. Incineration.

(Complete Question 9 if sewage sludge from your facility is fired in a sewage sludge incinerator.)

a. Total dry metric tons per 365-day period of sewage sludge from your facility fired in a sewage sludge incinerator: _____ dry metric tons

b. Do you own or operate all sewage sludge incinerators in which sewage sludge from your facility is fired?
_____ Yes _____ No

If "No", answer questions c - g for each sewage sludge incinerator that you do not own or operate. If you send sewage sludge to more than one sewage sludge incinerator, attach additional pages as necessary.

c. Incinerator name or number: _____

d. Contact person: _____

Title: _____

Phone: (_____) _____

Contact is: _____ Incinerator Owner _____ Incinerator Operator

e. Mailing address:

Street or P.O. Box: _____

City or Town: _____ State: _____ Zip: _____

f. Total dry metric tons per 365-day period of sewage sludge from your facility fired in this sewage sludge incinerator: _____ dry metric tons

g. List on this form or an attachment the numbers of all other federal, state or local permits that regulate the firing

of sewage sludge at this incinerator:

Permit Number: Type of Permit:

_____ _____

_____ _____

10. Disposal in a Municipal Solid Waste Landfill.

(Complete Question 10 if sewage sludge from your facility is placed on a municipal solid waste landfill. Provide the following information for each municipal solid waste landfill on which sewage sludge from your facility is placed. If sewage sludge is placed on more than one municipal solid waste landfill, attach additional pages as necessary.)

a. Landfill name: Old Dominion Landfill

b. Contact person: Pete Kistner

Title: _____

Phone: (804) 266-6197

Contact is: _____ Landfill Owner __X__ Landfill Operator

c. Mailing address:

Street or P.O. Box: 2001 Charles City Road

City or Town: Richmond State: VA Zip: 23231

d. Landfill location.

Street or Route #: 2001 Charles City Road

County: _____

City or Town: Richmond State: VA Zip: 23231

e. Total dry metric tons per 365-day period of sewage sludge placed in this municipal solid waste landfill:

_____ dry metric tons

f. List, on this form or an attachment, the numbers of all federal, state or local permits that regulate the operation of this municipal solid waste landfill:

Permit Number: Type of Permit:

SWP553 VA DEQ

_____ _____

g. Does sewage sludge meet applicable requirements in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq., concerning the quality of materials disposed in a municipal solid waste landfill?
_____ Yes _____ No NA Repealed March 16, 2011. Meets 9VAC20-81-140

h. Does the municipal solid waste landfill comply with all applicable criteria set forth in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq.? _____ Yes _____ No NA Repealed March 16, 2011 Meets 9VAC20-81-140

i. Will the vehicle bed or other container used to transport sewage sludge to the municipal solid waste landfill be watertight and covered? __X__ Yes _____ No

Show the haul route(s) on a location map or briefly describe the route below and indicate the days of the week and time of the day sewage sludge will be transported. _____

Exit WWTP and follow Rt. 207 to 95 South. Take 95 South to 295 South to Creighton Rd. From Creighton Rd, make a left on Laburnum Ave. Take Laburnum Ave to 9 Mile Rd, make a left on Masonic Ln. Take Masonic Ln. to Williamsburg Rd, cross over to Charles City Rd. Make a right and end at Old Dominion Landfill. Sludge is transported as needed during normal business hours.

SECTION C. LAND APPLICATION OF BULK SEWAGE SLUDGE

Complete this section for sewage sludge that is land applied unless any of the following conditions apply:

- ***The sewage sludge meets the Table 1 ceiling concentrations, the Table 3 pollutant concentrations, Class A pathogen requirements and one of the vector attraction reduction options 1-8 (fill out B.4 instead) (EQ Sludge); or***
- ***The sewage sludge is sold or given away in a bag or other container for application to the land (fill out B.5 instead); or***
- ***You provide the sewage sludge to another facility for treatment or blending (fill out B.6 instead).***

Complete Section C for every site on which the sewage sludge that you reported in B.7 is land applied.

1. Identification of Land Application Site.

a. Site name or number: _____

b. Site location (Complete i and ii)

i. Street or Route#: _____

County: _____

City or Town: _____ State: _____ Zip: _____

ii. Latitude: _____ Longitude: _____

Method of latitude/longitude determination

_____ USGS map _____ Filed survey _____ Other

c. Topographic map. Provide a topographic map (or other appropriate map if a topographic map is unavailable) that shows the site location.

2. Owner Information.

a. Are you the owner of this land application site? _____ Yes _____ No

b. If "No", provide the following information about the owner:

Name: _____

Street or P.O. Box: _____

City or Town: _____ State: _____ Zip: _____

Phone: (_____) _____

3. Applier Information:

a. Are you the person who applies, or who is responsible for application of, sewage sludge to this land application site?

_____ Yes _____ No

b. If "No", provide the following information for the person who applies the sewage sludge:

Name: _____

Street or P.O. Box: _____

City or Town: _____ State: _____ Zip: _____

Phone: (_____) _____

c. List, on this form or an attachment, the numbers of all federal, state or local permits that regulate the person who applies sewage sludge to this land application site:

Permit Number:	Type of Permit:
_____	_____
_____	_____

4. Site Type. Identify the type of land application site from among the following:

_____ Agricultural land _____ Reclamation site _____ Forest

_____ Public contact site _____ Other (describe _____

5. Vector Attraction Reduction.

Are any vector attraction reduction requirements met when sewage sludge is applied to the land application site?

_____ Yes _____ No If "Yes", answer a and b.

a. Indicate which vector attraction reduction option is met:

_____ Option 9 (Injection below land surface)

_____ Option 10 (Incorporation into soil within 6 hours)

b. Describe, on this form or on another sheet of paper, any treatment processes used at the land application site to reduce the vector attraction properties of sewage sludge:

_____

_____

6. Cumulative Loadings and Remaining Allotments.

(Complete Question 6 only if the sewage sludge applied to this site since July 20, 1993 is subject to the cumulative pollutant loading rates (CPLRs) - see instructions.)

a. Have you contacted DEQ or the permitting authority in the state where the sewage sludge subject to the CPLRs will be applied to ascertain whether bulk sewage sludge subject to the CPLRs has been applied to this site since July 20, 1993? _____ Yes _____ No

If "No", sewage sludge subject to the CPLRs may not be applied to this site.

If "Yes", provide the following information:

Permitting authority: _____

Contact person: _____

Phone: (_____) _____

b. Based upon this inquiry, has bulk sewage sludge subject to the CPLRs been applied to this site since July 20, 1993? _____ Yes _____ No If "No", skip the rest of Question 6. If "Yes", answer questions c - e.

c. Site size, in hectares: _____ (one hectare = 2.471 acres)

d. Provide the following information for every facility other than yours that is sending or has sent sewage sludge subject to the CPLRs to this site since July 20, 1993. If more than one such facility sends sewage sludge to this site, attach additional pages as necessary.

Facility name: _____

Facility contact: _____

Title: _____

Phone: (_____) _____

Mailing address.

Street or P.O. Box: _____

City or Town: _____ State: _____ Zip: _____

e. Provide the total loading and allotment remaining, in kg/hectare, for each of the following pollutants:

	Cumulative loading	Allotment remaining
Arsenic	_____	_____
Cadmium	_____	_____
Copper	_____	_____
Lead	_____	_____
Mercury	_____	_____
Nickel	_____	_____
Selenium	_____	_____
Zinc	_____	_____

Complete Questions 7-12 below only if you apply sewage sludge, or you are responsible for land application of sewage sludge. Information required by these questions may be prepared as attachments to this form. Skip the following questions if you contract land application to someone else (as indicated under Section A.7) who is responsible for the operation.

7. **Sludge Characterization.** Use the table below or a separate attachment, provide at least one analysis for each parameter.

PCBs (mg/kg)	
pH (S. U.)	
Percent Solids (%)	
Ammonium Nitrogen (mg/kg)	
Nitrate Nitrogen (mg/kg)	
Total Kjeldahl Nitrogen (mg/kg)	
Total Phosphorus (mg/kg)	
Total Potassium (mg/kg)	
Alkalinity as $CaCO_3$* (mg/kg)	

* Lime treated sludge (10% or more lime by dry weight) should be analyzed for percent $CaCO_3$.

8. **Storage Requirements.**

Existing and proposed sludge storage facilities must provide an estimated annual sludge balance on a monthly basis incorporating such factors as storage capacity, sludge production and land application schedule. Include pertinent calculations justifying storage requirements.

Proposed sludge storage facilities must also provide the following information:

a. A sludge storage site layout on a 7.5 minute topographic quadrangle or other appropriate scaled map to show the following topographic features of the surrounding landscape to a distance of 0.25 mile. Clearly mark the property line.

1) Water wells, abandoned or operating
2) Surface waters
3) Springs
4) Public water supply(s)
5) Sinkholes
6) Underground and/or surface mines
7) Mine pool (or other) surface water discharge points
8) Mining spoil piles and mine dumps
9) Quarry(s)
10) Sand and gravel pits
11) Gas and oil wells
12) Diversion ditch(s)
13) Agricultural drainage ditch(s)
14) Occupied dwellings, including industrial and commercial establishments
15) Landfills or dumps
16) Other unlined impoundments
17) Septic tanks and drainfields
18) Injection wells
19) Rock outcrops

b. A topographic map of sufficient detail to clearly show the following information:

1) Maximum and minimum percent slopes
2) Depressions on the site that may collect water
3) Drainageways that may attribute to rainfall run-on to or runoff from this site
4) Portions of the site (if any) which are located with the 100-year floodplain and how the storage facility will be protected from flooding

c. Data and specifications for the storage facility lining material.

d. Plan and cross-sectional views of the storage facility.

e. Depth from the bottom of the storage facility to the seasonal high water table and separation distance to the permanent water table.

9. **Land Area Requirements.** Provide calculations justifying the land area requirements for land application of sewage sludge taking into consideration average soil productivity group, crop(s) to be grown and most limiting factor(s) of the sewage sludge, specifically Plant Available Nitrogen (PAN), Calcium Carbonate Equivalence (CCE), and metal loadings

(CPLR sewage sludge only), where applicable. Relate PAN, CCE, and metal loadings to demonstrate the most limiting factor for land application.

10. **Landowner Agreement Forms.** Provide a properly completed Sewage Sludge Application Agreement Form (attached) for each landowner if sewage sludge is to be applied onto land not owned by the applicant.

11. **Ground Water Monitoring.**

Are any ground water monitoring data available for this land application site? _____ Yes _____ No

If "Yes", submit the ground water monitoring data with this permit application. Also submit a written description of the well locations, approximate depth to ground water, and the ground water monitoring procedures used to obtain these data.

12. **Land Application Site Information.**

(Complete Items a-d for sites receiving infrequent application - land application of sewage sludge up to the agronomic rate at a frequency of once in a 3 year period; complete Items a-h for sites receiving frequent application - land application of sewage sludge in excess of 70% the agronomic rate at a frequency greater than once in a 3 year period)

a. Provide a general location map for each county which clearly indicates the location of all the land application sites.

b. For each land application site provide a site plan of sufficient detail to clearly show the concerned landscape features and associated buffer zones (See instructions). Provide a legend for each landscape feature and the net acreage for each field taking into account the proposed buffer zones.

c. In order to ensure that land application of bulk sewage sludge will not impact federally listed threatened or endangered species or federally designated critical habitat, the applicant must notify the field office of the U. S. Department of the Interior, Fish and Wildlife Service (FWS), by a letter, the proposed land application activities with the identification of the land application sites. The address and phone number of FWS are provided below.

U.S. Fish and Wildlife Service
Virginia Field Office
P.O. Box 480
White Marsh, VA 23183
TEL: (804) 693-6694

Provide a copy of the notification letter with this application form.

d. Provide a soil survey map, preferably photographically based, with the field boundaries clearly marked. (A USDA-SCS soil survey map should be provided, if available.)

Provide a detailed legend for each soil survey map which uses accepted USDA-SCS descriptions of the typifying pedon for each soil series (soil type). Complex associations may be described as a range of characteristics. Soil descriptions shall include as a minimum the following information.

1) Soil symbol
2) Soil series, textural phase and slope range
3) Depth to seasonal high water table
4) Depth to bedrock
5) Estimated soil productivity group (for the proposed crop rotation)

Item e - h are required for sites receiving frequent application of sewage sludge

e. In order to verify the information provided in item d, characterize the soil at each land application site. Representative soil borings or test pits to a depth of five feet or to bedrock if shallower, are to be coordinated for the typifying pedon of each soil series (soil type). Soil descriptions shall include as a minimum the following information:

1) Soil symbol
2) Soil series, textural phase and slope range
3) Depth to seasonal high water table
4) Depth to bedrock
5) Estimated soil productivity group (for the proposed crop rotation)

f. Collect and analyze soil samples from each field, weighted to best represent each of the soil borings performed for Item e. Using the table below or a separate attachment, provide at least one analysis per sample for each of the following parameters.

Soil Organic Matter (%) _____

Soil pH (std. units) _____

Cation Exchange Capacity (meq/100g) _____

Total Nitrogen (ppm) _____

Organic Nitrogen (ppm) _____

Ammonia Nitrogen (ppm) _____

Nitrate Nitrogen (ppm) _____

Available Phosphorus (ppm) _____

Exchangeable Potassium (mg/100g) _____

Exchangeable Sodium (mg/100g) _____

Exchangeable Calcium (mg/100g) _____

Exchangeable Magnesium (mg/100g) _____

Arsenic (ppm) _____

Cadmium (ppm) _____

Copper (ppm) _____

Lead (ppm) _____

Mercury (ppm) _____

Molybdenum (ppm) _____

Nickel (ppm) _____

Selenium (ppm) _____

Zinc (ppm) _____

Manganese (ppm) _____

Particle Size Analysis or USDA Textural Estimate (%) _____

g. Relate the crop nutrient needs to anticipated yields, soil productivity rating and the various fertilizer or nutrient sources from sludge and chemical fertilizers. Describe any specialized agronomic management practices which may be required as a result of high soil pH. If the sludge is expected to possess an unusually high CCE or other unusual properties, provide a description of any plant tissue testing, supplemental fertilization or intensive agronomic management practices which may be necessary.

h. Using a narrative format and referencing any related charts, describe the proposed cropping system. Show how the crop rotation and management will be coordinated with the design of the land application system. Include any supplemental fertilization program, soil testing and the coordination of tillage practices, planting and harvesting schedules and timing of land application.

SEWAGE SLUDGE APPLICATION AGREEMENT

This sewage sludge application agreement is made on this date _____ between _____, referred to here as "landowner", and _____, referred to here as the "Permittee".

Landowner is the owner of agricultural land shown on the map attached as Exhibit A and designated there as _____ ("landowner's land"). Permittee agrees to apply and landowner agrees to comply with certain permit requirements following application of sewage sludge on landowner's land in amounts and in a manner authorized by VPDES permit number _____ which is held by the Permittee.

Landowner acknowledges that the appropriate application of sewage sludge will be beneficial in providing fertilizer and soil conditioning to the property. Moreover, landowner acknowledges having been expressly advised that, in order to protect public health, the following site restrictions must be adhered to when sewage sludge receives Class B treatment for pathogen reduction:

1. Food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of sewage sludge;
2. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of sewage sludge when the sewage sludge remains on the land surface for four months or longer prior to incorporation into the soil;
3. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than four months prior to incorporation into the soil;
4. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of sewage sludge;
5. Animals shall not be grazed on the land for 30 days after application of sewage sludge;
6. Turf grown on land where sewage sludge is applied shall not be harvested for one year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the State Water Control Board;
7. Public access to land with a high potential for public exposure shall be restricted for one year after application of sewage sludge;
8. Public access to land with a low potential for public exposure shall be restricted for 30 days after application of sewage sludge.
9. Tobacco, because it has been shown to accumulate cadmium, should not be grown on landowner's land for three years following the application of sewage sludge borne cadmium equal to or exceeding 0.5 kilograms/hectare (0.45 pounds/acre).

Permittee agrees to notify landowner or landowner's designee of the proposed schedule for sewage sludge application and specifically prior to any particular application to landowner's land. This agreement may be terminated by either party upon written notice to the address specified below.

Landowner:	Permittee:
_____	_____
Signature	Signature
_____	_____
Mailing Address	Mailing Address

SECTION D. SURFACE DISPOSAL

Complete this section only if you own or operate a surface disposal site. Provide the information for each active sewage sludge unit.

1. Information on Active Sewage Sludge Units.

a. Unit name or number: _____

b. Unit location

i. Street or Route#: _____

County: _____

City or Town: _____ State: _____ Zip: _____

ii. Latitude: _____ Longitude: _____

Method of latitude/longitude determination
_____ USGS map _____ Filed survey _____ Other

c. Topographic map. Provide a topographic map (or other appropriate map if a topographic map is unavailable) that shows the site location.

d. Total dry metric tons of sewage sludge placed on the active sewage sludge unit per 365-day period:

_____ dry metric tons.

e. Total dry metric tons of sewage sludge placed on the active sewage sludge unit over the life of the unit:

_____ dry metric tons.

f. Does the active sewage sludge unit have a liner with a minimum hydraulic conductivity of 1×10^{-7} cm/sec?
_____ Yes _____ No If "Yes", describe the liner or attach a description.

_____

_____

g. Does the active sewage sludge unit have a leachate collection system? _____ Yes _____ No

If "Yes", describe the leachate collection system or attach a description. Also, describe the method used for leachate disposal and provide the numbers of any federal, state or local permits for leachate disposal:

_____

_____

_____

h. If you answered "No" to either f or g, answer the following:
Is the boundary of the active sewage sludge unit less than 150 meters from the property line of the surface disposal site? _____ Yes _____ No If "Yes", provide the actual distance in meters: _____

i. Remaining capacity of active sewage sludge unit, in dry metric tons: _____ dry metric tons

Anticipated closure date for active sewage sludge unit, if known: _____ (MM/DD/YYYY)

Provide with this application a copy of any closure plan developed for this active sewage sludge unit.

2. Sewage Sludge from Other Facilities.

Is sewage sludge sent to this active sewage sludge unit from any facilities other than yours? _____ Yes _____ No

If "Yes", provide the following information for each such facility, attach additional sheets as necessary.

a. Facility name: _____

b. Facility contact: _____

Title: _____

Phone: (_____) _____

c. Mailing address:

Street or P.O. Box: _____

City or Town: _____ State: _____ Zip: _____

d. List, on this form or an attachment, the facility's VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the facility's sewage sludge management practices:

Permit Number: Type of Permit:

_____ _____

_____ _____

e. Which class of pathogen reduction is achieved before sewage sludge leaves the other facility?
_____ Class A _____ Class B _____ Neither or unknown

f. Describe, on this form or on another sheet of paper, any treatment processes used at the other facility to reduce pathogens in sewage sludge: _____

_____

_____

g. Which vector attraction reduction option is achieved before sewage sludge leaves the other facility?

_____ Option 1 (Minimum 38 percent reduction in volatile solids)
_____ Option 2 (Anaerobic process, with bench-scale demonstration)
_____ Option 3 (Aerobic process, with bench-scale demonstration)
_____ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
_____ Option 5 (Aerobic processes plus raised temperature)
_____ Option 6 (Raise pH to 12 and retain at 11.5)
_____ Option 7 (75 percent solids with no unstabilized solids)
_____ Option 8 (90 percent solids with unstabilized solids)
_____ None or unknown

h. Describe, on this form or another sheet of paper, any treatment processes used at the other facility to reduce vector attraction properties of sewage sludge: _____

_____

_____

i. Describe, on this form or another sheet of paper, any other sewage sludge treatment activities performed by the other facility that are not identified in e - h above: _____

_____

_____

3. Vector Attraction Reduction.

a. Which vector attraction reduction option, if any, is met when sewage sludge is placed on this active sewage sludge unit?

_____ Option 9 (Injection below land surface)
_____ Option 10 (Incorporation into soil within 6 hours)
_____ Option 11 (Covering active sewage sludge unit daily)

b. Describe, on this form or another sheet of paper, any treatment processes used at the active sewage sludge unit to reduce vector attraction properties of sewage sludge: _____

_____

_____

4. Ground Water Monitoring.

a. Is ground water monitoring currently conducted at this active sewage sludge unit or are ground water monitoring data otherwise available for this active sewage sludge unit? _____ Yes _____ No

If "Yes", provide a copy of available ground water monitoring data. Also provide a written description of the well locations, the approximate depth to ground water, and the ground water monitoring procedures used to obtain these

data.

b. Has a ground water monitoring program been prepared for this active sewage sludge unit?
_____ Yes _____ No If "Yes", submit a copy of the ground water monitoring program with this application.

c. Have you obtained a certification from a qualified ground water scientist that the aquifer below the active sewage sludge unit has not been contaminated? _____ Yes _____ No

If "Yes", submit a copy of the certification with this application.

5. Site-Specific Limits.

Are you seeking site-specific pollutant limits for the sewage sludge placed on the active sewage sludge unit?
_____ Yes _____ No If "Yes", submit information to support the request for site-specific pollutant limits with this application.

Microbac Laboratories, Inc.
Baltimore Division
2101 Van Deman Street • Baltimore, MD 21224
Phone: 410-633-1800
Fax: 410-633-6553
www.microbac.com

COVER LETTER

Martina Conley
Caroline County Dept. of Public Utilities
PO BOX 424
Bowling Green, VA 22427
RE: PPS

November 04, 2011
Report No.: 11J1422

The report of analyses contains test results for samples received at Microbac Laboratories, Inc., Baltimore Division on 10/28/2011 12:02.

The enclosed results were obtained from and applicable to the sample(s) as received at the laboratory. All sample results are reported on an "as received" basis unless otherwise noted.

All data included in this report has been reviewed and meet the applicable project and certification specific requirements, unless otherwise noted.

This report has been paginated in its entirety and shall not be reproduced except in full, without the written approval of Microbac Laboratories, Inc.

We appreciate the opportunity to service your analytical needs. If you have any questions, please feel free to contact us.

This Data Package contains the following:

- This Cover Page
- Sample Summary
- Case Narative
- Test Results
- QC Summary
- Notes and Definitions
- Cooler Receipt Log
- Chain of Custody
- Data

11/4/2011

Final report reviewed by: Curtis B. Read/Project Manager Report issue date

All samples received in proper condition and results conform to ISO 17025 standards unless otherwise noted.

If we have not met or exceeded your expectations, please contact the Director or Trevor Boyce, President at tboyce@microbac.com or Robert Morgan, Chief Operation Officer, at rmorgan@microbac.com.

Microbac Laboratories, Inc.
Baltimore Division
2101 Van Deman Street • Baltimore, MD 21224

Phone: 410-633-1800
Fax: 410-633-6553
www.microbac.com

CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilities	Project: PPS	Report: 11J1422
PO BOX 424	Project Number: [none]	Reported: 11/04/2011 11:42
Bowling Green, VA 22427	Project Manager: Martina Conley	

SAMPLE SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
Influent	11J1422-01	Wastewater	Composite	10/28/2011 08:30	10/28/2011 12:02
Effluent	11J1422-02	Wastewater	Composite	10/28/2011 08:30	10/28/2011 12:02
Influent	11J1422-03	Wastewater	Grab	10/28/2011 08:35	10/28/2011 12:02
Effluent	11J1422-04	Wastewater	Grab	10/28/2011 08:35	10/28/2011 12:02

Microbac Laboratories, Inc., Baltimore Division

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Curtis B. Read, Project Manager

Microbac Laboratories, Inc.
Baltimore Division
2101 Van Deman Street • Baltimore, MD 21224

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilities	Project: PPS	Report: 11J1422
PO BOX 424	Project Number: [none]	Reported: 11/04/2011 11:42
Bowling Green, VA 22427	Project Manager: Martina Conley	

CASE NARRATIVE

Microbac Laboratories, Inc.
Baltimore Division
2101 Van Deman Street • Baltimore, MD 21224

Phone: 410-633-1800
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www.microbac.com

CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilities	Project: PPS	Report: 11J1422
PO BOX 424	Project Number: [none]	Reported: 11/04/2011 11:42
Bowling Green, VA 22427	Project Manager: Martina Conley	

Influent

11J1422-01 (Wastewater) Sampled: 10/28/2011 08:30; Type: Composite

Microbac Laboratories, Inc., Baltimore Division

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Wet Chemistry								
Chloride	**170**	2.0	mg/L	103111 1230	103111 1230	BMC	SM (20) 4500Cl-C	D
Hexavalent Chromium	**0.020**	0.0050	mg/L	110211 1539	110211 1549	BMC	SM(20)3500Cr-D	Z10a
Calculated Results								
Trivalent Chromium	ND	0.0050	mg/L	110211 1539	110211 1549	BMC	Calculation	
Mercury, Total by EPA 200/7000 Series Methods								
Mercury	ND	0.00020	mg/L	110311 1046	110311 1804	EDP	EPA 245.1/7470A	
Metals, Total by EPA 200/6000 Series Methods								
Silver	ND	0.0010	mg/L	110111 0835	110111 1552	PBK	EPA 200.8/6020	
Arsenic	ND	0.0020	mg/L	110111 0835	110111 1552	PBK	EPA 200.8/6020	
Cadmium	**0.00072**	0.00050	mg/L	110111 0835	110111 1552	PBK	EPA 200.8/6020	
Chromium	**0.0022**	0.0020	mg/L	110111 0835	110111 1552	PBK	EPA 200.8/6020	
Copper	**0.034**	0.0010	mg/L	110111 0835	110111 1552	PBK	EPA 200.8/6020	
Nickel	**0.0079**	0.0050	mg/L	110111 0835	110111 1552	PBK	EPA 200.8/6020	
Lead	**0.0027**	0.0010	mg/L	110111 0835	110111 1552	PBK	EPA 200.8/6020	
Selenium	ND	0.0050	mg/L	110111 0835	110111 1552	PBK	EPA 200.8/6020	

Microbac Laboratories, Inc., Baltimore Division

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Curtis B. Read, Project Manager

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Baltimore Division

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilities	Project: PPS	Report: 11J1422
PO BOX 424	Project Number: [none]	Reported: 11/04/2011 11:42
Bowling Green, VA 22427	Project Manager: Martina Conley	

Effluent

11J1422-02 (Wastewater) Sampled: 10/28/2011 08:30; Type: Composite

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Wet Chemistry								
Chloride	**240**	5.0	mg/L	103111 1230	103111 1230	BMC	SM (20) 4500Cl-C	D
Hexavalent Chromium	ND	0.0050	mg/L	110211 1539	110211 1549	BMC	SM(20)3500Cr-D	Z10a
Calculated Results								
Trivalent Chromium	ND	0.0050	mg/L	110211 1539	110211 1549	BMC	Calculation	
Mercury, Total by EPA 200/7000 Series Methods								
Mercury	ND	0.00020	mg/L	110311 1046	110311 1806	EDP	EPA 245.1/7470A	
Metals, Total by EPA 200/6000 Series Methods								
Silver	ND	0.0010	mg/L	110111 0835	110111 1556	PBK	EPA 200.8/6020	
Arsenic	ND	0.0020	mg/L	110111 0835	110111 1556	PBK	EPA 200.8/6020	
Cadmium	ND	0.00050	mg/L	110111 0835	110111 1556	PBK	EPA 200.8/6020	
Chromium	ND	0.0020	mg/L	110111 0835	110111 1556	PBK	EPA 200.8/6020	
Copper	**0.0026**	0.0010	mg/L	110111 0835	110111 1556	PBK	EPA 200.8/6020	
Nickel	**0.0065**	0.0050	mg/L	110111 0835	110111 1556	PBK	EPA 200.8/6020	
Lead	ND	0.0010	mg/L	110111 0835	110111 1556	PBK	EPA 200.8/6020	
Selenium	ND	0.0050	mg/L	110111 0835	110111 1556	PBK	EPA 200.8/6020	

Microbac Laboratories, Inc., Baltimore Division

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Curtis B. Read, Project Manager

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Caroline County Dept. of Public Utilities	Project: PPS	Report: 11J1422
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Bowling Green, VA 22427	Project Manager: Martina Conley	

Influent

11J1422-03 (Wastewater) Sampled: 10/28/2011 08:35; Type: Grab

Microbac Laboratories, Inc., Baltimore Division

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Wet Chemistry								
Cyanide, Total	ND	0.0050	mg/L	110111 0800	110211 1029	VAS	EPA 335.4	
BTEX								
Methyl-tert-Butyl Ether	ND	1.0	ug/L	110111 1308	110111 1308	MBH	EPA 8260B	
Benzene	ND	1.0	ug/L	110111 1308	110111 1308	MBH	EPA 8260B	
Toluene	ND	1.0	ug/L	110111 1308	110111 1308	MBH	EPA 8260B	
Ethylbenzene	ND	1.0	ug/L	110111 1308	110111 1308	MBH	EPA 8260B	
m,p-Xylenes	ND	2.0	ug/L	110111 1308	110111 1308	MBH	EPA 8260B	
o-Xylene	ND	1.0	ug/L	110111 1308	110111 1308	MBH	EPA 8260B	
Total Xylenes	ND	3.0	ug/L	110111 1308	110111 1308	MBH	EPA 8260B	
Surrogate: Dibromofluoromethane		*98.9%*	*87-112*	*110111 1308*	*110111 1308*		*EPA 8260B*	
Surrogate: 1,2-Dichloroethane-d4		*90.2%*	*76.9-123*	*110111 1308*	*110111 1308*		*EPA 8260B*	
Surrogate: Toluene-d8		*102%*	*94.5-105*	*110111 1308*	*110111 1308*		*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*106%*	*86.4-116*	*110111 1308*	*110111 1308*		*EPA 8260B*	
Oil and Grease								
Oil & Grease	**16**	5	mg/L	110111 1000	110111 1014	RCS	EPA 1664A	

Microbac Laboratories, Inc., Baltimore Division

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Curtis B. Read, Project Manager

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilities	Project: PPS	Report: 11J1422
PO BOX 424	Project Number: [none]	Reported: 11/04/2011 11:42
Bowling Green, VA 22427	Project Manager: Martina Conley	

Effluent

11J1422-04 (Wastewater) Sampled: 10/28/2011 08:35; Type: Grab

Microbac Laboratories, Inc., Baltimore Division

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Wet Chemistry								
Cyanide, Total	ND	0.0050	mg/L	110111 0800	110211 1028	VAS	EPA 335.4	
BTEX								
Methyl-tert-Butyl Ether	ND	1.0	ug/L	110111 1334	110111 1334	MBH	EPA 8260B	
Benzene	ND	1.0	ug/L	110111 1334	110111 1334	MBH	EPA 8260B	
Toluene	ND	1.0	ug/L	110111 1334	110111 1334	MBH	EPA 8260B	
Ethylbenzene	ND	1.0	ug/L	110111 1334	110111 1334	MBH	EPA 8260B	
m,p-Xylenes	ND	2.0	ug/L	110111 1334	110111 1334	MBH	EPA 8260B	
o-Xylene	ND	1.0	ug/L	110111 1334	110111 1334	MBH	EPA 8260B	
Total Xylenes	ND	3.0	ug/L	110111 1334	110111 1334	MBH	EPA 8260B	
Surrogate: Dibromofluoromethane		*99.0%*	*87-112*	*110111 1334*	*110111 1334*		*EPA 8260B*	
Surrogate: 1,2-Dichloroethane-d4		*96.1%*	*76.9-123*	*110111 1334*	*110111 1334*		*EPA 8260B*	
Surrogate: Toluene-d8		*99.5%*	*94.5-105*	*110111 1334*	*110111 1334*		*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*106%*	*86.4-116*	*110111 1334*	*110111 1334*		*EPA 8260B*	
Oil and Grease								
Oil & Grease	ND	5	mg/L	110111 1000	110111 1016	RCS	EPA 1664A	

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Bowling Green, VA 22427	Project Manager: Martina Conley	

Wet Chemistry - Quality Control Summary

Microbac Laboratories, Inc., Baltimore Division

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1145049 - CN_Prep										
Blank (1145049-BLK1)				Prepared: 11/01/2011 Analyzed: 11/02/2011						
Cyanide, Total	ND	0.0050	mg/L							
LCS (1145049-BS1)				Prepared: 11/01/2011 Analyzed: 11/02/2011						
Cyanide, Total	0.0997	0.0050	mg/L	0.1000		99.7	80-120			
Duplicate (1145049-DUP1)		**Source: 11J1258-22**		Prepared: 11/01/2011 Analyzed: 11/02/2011						
Cyanide, Total	ND	0.0050	mg/L		ND				20	
Matrix Spike (1145049-MS1)		**Source: 11J1258-22**		Prepared: 11/01/2011 Analyzed: 11/02/2011						
Cyanide, Total	0.0538	0.0050	mg/L	0.05000	ND	108	80-120			
Batch 1145129 - Cl_Titration_Prep										
Blank (1145129-BLK1)				Prepared & Analyzed: 10/31/2011						
Chloride	ND	1.0	mg/L							
LCS (1145129-BS1)				Prepared & Analyzed: 10/31/2011						
Chloride	50.0	1.0	mg/L	50.00		100	94-108			
Duplicate (1145129-DUP1)		**Source: 11J1422-02**		Prepared & Analyzed: 10/31/2011						
Chloride	237	5.0	mg/L		237			0.00	11	D
Matrix Spike (1145129-MS1)		**Source: 11J1422-02**		Prepared & Analyzed: 10/31/2011						
Chloride	262	5.0	mg/L	25.00	237	99.8	89-112			D
Batch 1145130 - CR+6_Prep										
Blank (1145130-BLK1)				Prepared & Analyzed: 11/02/2011						
Hexavalent Chromium	ND	0.0050	mg/L							

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Bowling Green, VA 22427	Project Manager: Martina Conley	

Wet Chemistry - Quality Control Summary

Microbac Laboratories, Inc., Baltimore Division

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1145130 - CR+6_Prep										
LCS (1145130-BS1)				Prepared & Analyzed: 11/02/2011						
Hexavalent Chromium	0.108	0.0050	mg/L	0.1000		108	90-114			
Duplicate (1145130-DUP1)		**Source: 11K0191-01**		Prepared & Analyzed: 11/02/2011						
Hexavalent Chromium	ND	0.050	mg/L		ND				20	D
Matrix Spike (1145130-MS1)		**Source: 11K0191-01**		Prepared & Analyzed: 11/02/2011						
Hexavalent Chromium	0.547	0.050	mg/L	0.5000	ND	109	85-115			D
Matrix Spike Dup (1145130-MSD1)		**Source: 11K0191-01**		Prepared & Analyzed: 11/02/2011						
Hexavalent Chromium	0.552	0.050	mg/L	0.5000	ND	110	85-115	0.910	20	D

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Bowling Green, VA 22427	Project Manager: Martina Conley	

Mercury, Total by EPA 200/7000 Series Methods - Quality Control Summary

Microbac Laboratories, Inc., Baltimore Division

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1145166 - Metals_Hg_Prep										
Blank (1145166-BLK1)				Prepared & Analyzed: 11/03/2011						
Mercury	ND	0.00020	mg/L							
LCS (1145166-BS1)				Prepared & Analyzed: 11/03/2011						
Mercury	0.00213	0.00020	mg/L	0.002006		106	85-115			
Duplicate (1145166-DUP1)	**Source: 11J1422-02**			Prepared & Analyzed: 11/03/2011						
Mercury	ND	0.00020	mg/L		ND				20	
Matrix Spike (1145166-MS1)	**Source: 11J1422-02**			Prepared & Analyzed: 11/03/2011						
Mercury	0.00203	0.00020	mg/L	0.002006	ND	101	70-130			
Matrix Spike Dup (1145166-MSD1)	**Source: 11J1422-02**			Prepared & Analyzed: 11/03/2011						
Mercury	0.00204	0.00020	mg/L	0.002006	ND	101	70-130	0.213	20	
Batch M1K0407 - 1145166										
Instrument Blank (M1K0407-IBL1)				Prepared & Analyzed: 11/03/2011						
Mercury	ND	0.00020	ug/L							

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Bowling Green, VA 22427	Project Manager: Martina Conley	

Metals, Total by EPA 200/6000 Series Methods - Quality Control Summary

Microbac Laboratories, Inc., Baltimore Division

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1145040 - EPA 200.2 ICPMS										
Blank (1145040-BLK1)				Prepared & Analyzed: 11/01/2011						
Silver	ND	0.0010	mg/L							
Copper	ND	0.0010	"							
Chromium	ND	0.0020	"							
Lead	ND	0.0010	"							
Cadmium	ND	0.00050	"							
Selenium	ND	0.0050	"							
Nickel	ND	0.0050	"							
Arsenic	ND	0.0020	"							
LCS (1145040-BS1)				Prepared & Analyzed: 11/01/2011						
Cadmium	0.202	0.00050	mg/L	0.2000		101	85-115			
Chromium	0.203	0.0020	"	0.2000		101	85-115			
Lead	0.205	0.0010	"	0.2000		103	85-115			
Arsenic	0.205	0.0020	"	0.2000		103	85-115			
Copper	0.196	0.0010	"	0.2000		98.0	85-115			
Nickel	0.202	0.0050	"	0.2000		101	85-115			
Selenium	0.206	0.0050	"	0.2000		103	85-115			
Silver	0.101	0.0010	"	0.1000		101	85-115			
Duplicate (1145040-DUP1)	**Source: 11J0244-01**			Prepared & Analyzed: 11/01/2011						
Selenium	0.00264	0.0050	mg/L		0.00357			29.9	20	R6
Chromium	0.00598	0.0020	"		0.00665			10.6	20	
Copper	0.0426	0.0010	"		0.0430			0.776	20	
Arsenic	0.00424	0.0020	"		0.00475			11.4	20	
Lead	0.0352	0.0010	"		0.0358			1.69	20	
Nickel	0.00491	0.0050	"		0.00537			8.83	20	
Silver	ND	0.0010	"		ND				20	
Cadmium	ND	0.00050	"		ND				20	

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Metals, Total by EPA 200/6000 Series Methods - Quality Control Summary

Microbac Laboratories, Inc., Baltimore Division

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1145040 - EPA 200.2 ICPMS										
Matrix Spike (1145040-MS1)		**Source: 11J0244-01**		Prepared & Analyzed: 11/01/2011						
Chromium	0.196	0.0020	mg/L	0.2000	0.00665	94.7	70-130			
Cadmium	0.202	0.00050	"	0.2000	ND	101	70-130			
Silver	0.0994	0.0010	"	0.1000	ND	99.4	70-130			
Selenium	0.202	0.0050	"	0.2000	0.00357	99.2	70-130			
Arsenic	0.211	0.0020	"	0.2000	0.00475	103	70-130			
Copper	0.234	0.0010	"	0.2000	0.0430	95.5	70-130			
Nickel	0.201	0.0050	"	0.2000	0.00537	97.7	70-130			
Lead	0.231	0.0010	"	0.2000	0.0358	97.8	70-130			
Matrix Spike Dup (1145040-MSD1)		**Source: 11J0244-01**		Prepared & Analyzed: 11/01/2011						
Nickel	0.203	0.0050	mg/L	0.2000	0.00537	98.9	70-130	1.18	20	
Chromium	0.199	0.0020	"	0.2000	0.00665	96.1	70-130	1.49	20	
Arsenic	0.214	0.0020	"	0.2000	0.00475	105	70-130	1.51	20	
Copper	0.236	0.0010	"	0.2000	0.0430	96.5	70-130	0.839	20	
Lead	0.232	0.0010	"	0.2000	0.0358	98.1	70-130	0.267	20	
Cadmium	0.205	0.00050	"	0.2000	ND	103	70-130	1.49	20	
Silver	0.0997	0.0010	"	0.1000	ND	99.7	70-130	0.301	20	
Selenium	0.208	0.0050	"	0.2000	0.00357	102	70-130	3.19	20	
Post Spike (1145040-PS1)		**Source: 11J0244-01**		Prepared & Analyzed: 11/01/2011						
Copper	91.0		ug/L	50.00	43.0	96.1	75-125			
Arsenic	56.8		"	50.00	4.75	104	75-125			
Lead	83.2		"	50.00	35.8	94.7	75-125			
Selenium	53.8		"	50.00	3.57	100	75-125			
Chromium	55.0		"	50.00	6.65	96.7	75-125			
Cadmium	52.0		"	50.00	0.106	104	75-125			
Silver	25.0		"	25.00	0.0510	99.9	75-125			
Nickel	54.7		"	50.00	5.37	98.7	75-125			

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PO BOX 424	Project Number: [none]	Reported: 11/04/2011 11:42
Bowling Green, VA 22427	Project Manager: Martina Conley	

BTEX - Quality Control Summary

Microbac Laboratories, Inc., Baltimore Division

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1145103 - EPA 5030B										
LCS (1145103-BS1)				Prepared & Analyzed: 11/01/2011						
Methyl-tert-Butyl Ether	27.1	1.0	ug/L	20.00		136	82.1-125			L2
Benzene	26.4	1.0	"	20.00		132	83.1-119			L2
Toluene	26.4	1.0	"	20.00		132	82.1-124			L2
Ethylbenzene	25.2	1.0	"	20.00		126	80.3-124			L2
m,p-Xylenes	51.8	2.0	"	40.00		129	81.1-124			L2
o-Xylene	25.6	1.0	"	20.00		128	81.2-124			L2
Surrogate: Dibromofluoromethane	*25.2*		"	*25.00*		*101*	*87-112*			
Surrogate: 1,2-Dichloroethane-d4	*23.6*		"	*25.00*		*94.4*	*76.9-123*			
Surrogate: Toluene-d8	*24.5*		"	*25.00*		*98.2*	*94.5-105*			
Surrogate: 4-Bromofluorobenzene	*26.1*		"	*25.00*		*105*	*86.4-116*			
LCS Dup (1145103-BSD1)				Prepared & Analyzed: 11/01/2011						
Methyl-tert-Butyl Ether	27.8	1.0	ug/L	20.00		139	82.1-125	2.40	16.8	L2
Benzene	26.8	1.0	"	20.00		134	83.1-119	1.17	11.3	L2
Toluene	27.6	1.0	"	20.00		138	82.1-124	4.26	7.02	L2
Ethylbenzene	26.4	1.0	"	20.00		132	80.3-124	4.85	10.2	L2
m,p-Xylenes	53.1	2.0	"	40.00		133	81.1-124	2.59	10	L2
o-Xylene	26.2	1.0	"	20.00		131	81.2-124	2.51	9.6	L2
Surrogate: Dibromofluoromethane	*25.1*		"	*25.00*		*100*	*87-112*			
Surrogate: 1,2-Dichloroethane-d4	*24.0*		"	*25.00*		*95.8*	*76.9-123*			
Surrogate: Toluene-d8	*24.7*		"	*25.00*		*98.7*	*94.5-105*			
Surrogate: 4-Bromofluorobenzene	*26.0*		"	*25.00*		*104*	*86.4-116*			

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Bowling Green, VA 22427	Project Manager: Martina Conley	

Oil and Grease - Quality Control Summary

Microbac Laboratories, Inc., Baltimore Division

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1145022 - EPA 1664A										
Blank (1145022-BLK1)				Prepared & Analyzed: 11/01/2011						
Oil & Grease	ND	5	mg/L							
LCS (1145022-BS1)				Prepared & Analyzed: 11/01/2011						
Oil & Grease	37.0	5	mg/L	40.08		92.3	84.5-109			
LCS Dup (1145022-BSD1)				Prepared & Analyzed: 11/01/2011						
Oil & Grease	36.3	5	mg/L	40.08		90.6	84.5-109	1.91	11	

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Bowling Green, VA 22427	Project Manager: Martina Conley	

Certifications

Below is a list of certifications maintained by Microbac Laboratories, Inc. All data included in this report has been reviewed for and meets all project specific and quality control requirements of the applicable accreditation, unless otherwise noted. A complete list of individual analytes pursuant to each certification below is available upon request.

Lab #	Description	Certification Number	Expires
Microbac Laboratories, Inc., Baltimore Division			
A2LA1	A2LA (Biology)	410.02	04/30/2013
A2LA2	A2LA (Environmental)	410.01	04/30/2013
915	Commonwealth of Virginia (NELAC)	460170	06/30/2012
CPSC	CPSC Testing of Childrens Products and Jewelry	1115	04/30/2013
Pb	Environmental Lead (ELLAP)	410.01	04/30/2013
NJ	New Jersey	NLC110001	06/30/2012
NC665	North Carolina	665	12/31/2011
MD-DW	State of Maryland	109	06/30/2012
PA	State of Pennsylvania (NELAC)	68-00339	08/31/2012
USDA	US Department of Agriculture	P330-09-00021	02/19/2012
WV054	West Virginia	054	08/31/2011
Microbac Laboratories, Inc., Richmond Division			
150_R	Commonwealth of Virginia (NELAC)	460022	06/30/2012

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PO BOX 424	Project Number: [none]	Reported: 11/04/2011 11:42
Bowling Green, VA 22427	Project Manager: Martina Conley	

Notes and Definitions

Z10a	received at Baltimore lab for analysis past the holding time
Z10	Low check recovery was low.
R6	Sample Duplicate RPD is not applicable due to result less than reporting limit.
L2	The LCS recovery was above the laboratory acceptance limits. The target analyte concentration was below the reporting limit. No negative impact on the data.
D	Sample Diluted
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Microbac Laboratories, Inc., Baltimore Division

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Cooler Receipt Log

Cooler ID: Default Cooler

Cooler Temp: 1.40 °C

Custody Seals Intact:	Yes	COC/Containers Agree:	Yes
Containers Intact:	Yes	Correct Preservation:	Yes
Received On Ice:	Yes	Correct Number of Containers Received:	Yes
Radiation Scan Acceptable:	No	Sufficient Sample Volume for Testing:	Yes
COC Present:	Yes	Samples Received in Proper Condition:	Yes

Comments:

Work Order Number:

Richmond Division
2028 Dabney Road, Suite E-17
Richmond, VA 23230
www.microbac.com
Tel: 804-353-1999 Fax: 804-353-0330

Sample Submittal
Chain of Custody Record

Microbac

Client Name: Caroline County Regional WWTP	Project: Quarterly	Turnaround Time (Required)	QC and EDD Type (Required)
Address: 22101 Rogers Clark Blvd.	Location:	[✓] Routine (10 working days)	[ ] Level I / [ ] EDD
City, State, Zip: Ruther Glen, VA 22546	PO #:	[ ] RUSH* (notify lab)	[ ] Level II / Format:
Contact:	Compliance Monitoring? [✓] Yes [ ] No	(needed by)	[ ] Level III / Comments:
Telephone #: 804-448-0922	(1) Agency/Program		[ ] Level IV CLP-like

Sampled by (PRINT): Martina Conley Sampler Signature: Martina Conley Sampler Phone #:

Send Report via [ ] e-mail (address) mconley@co.caroline.va.us [ ] Mail [ ] Telephone [ ] Fax (fax #) 488-2562

* **Matrix Types:** Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analysis: BTEX	Chlorides	Cyanide	Metals	O&G
Influent	WW		X		10/27 - 10-28-11	0830 - 0830	3		X		X	
Effluent	↓		↓		↓	↓	↓		X		X	
Influent	↓	X			10-28-11	0835	4	X		X		X
Effluent	↓	↓			↓	0835	↓	X		X		X

Metals: As, Cd, Cu, Pb, Ni, Ag, Se, Hg — vm III & VI

Comments

11J1422

Possible Hazard Identification [ ] Hazardous [ ] Non-Hazardous [ ] Radioactive Sample Disposition [ ] Dispose as ap

Number of Containers: 14	Relinquished By (signature): Martina Conley	Printed Name/Affiliation: Martina Conley	Date/Time: 10.28.11 / 1040	Received By (signature):	Printed Name/Affiliation: MB
Cooler Number:	Relinquished By (signature):	Printed Name/Affiliation: MB	Date/Time: 10/28/11 12:02	Received By (signature):	Printed Name/Affiliation:
Temp upon receipt (°C): 1.4°C	Relinquished By (signature):	Printed Name/Affiliation:	Date/Time:	Received for Lab By (signature):	Printed Name/Affiliation:
Sample Received on Ice or Refrigerated from Client: (Yes) / No					

Rev. 04/24/08 WHITE - LAB YELLOW - REPORT

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Phone: 804-353-1999
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www.microbac.com

CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11K0362
Joshua Carson	Project Number: [none]	Reported: 11/14/2011 16:53
PO BOX 424	Sampled By: Josh Carson	
Bowling Green, VA 22427		

Influent

11K0362-01 (Wastewater) Sampled: 11/02/2011 08:00; Type: Composite

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Wet Chemistry								
Phosphorus, Total (as P)	**3.6**	0.10	mg/L	110811 0900	110811 1339	VAS	EPA 365.1	
Total Kjeldahl Nitrogen	**26**	1.0	mg/L	110711 1329	110811 1302	VAS	SM(20)4500N-org/NH3-G	D

Effluent

11K0362-02 (Wastewater) Sampled: 11/02/2011 08:00; Type: Composite

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Wet Chemistry								
Phosphorus, Total (as P)	**0.21**	0.010	mg/L	110811 0900	110811 1246	VAS	EPA 365.1	
Total Kjeldahl Nitrogen	**0.39**	0.10	mg/L	110711 1329	110811 1305	VAS	SM(20)4500N-org/NH3-G	

Influent

11K0362-03 (Wastewater) Sampled: 11/03/2011 08:15; Type: Composite

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Wet Chemistry								
Phosphorus, Total (as P)	**6.1**	0.10	mg/L	110811 0900	110811 1341	VAS	EPA 365.1	
Total Kjeldahl Nitrogen	**25**	1.0	mg/L	110711 1329	110811 1307	VAS	SM(20)4500N-org/NH3-G	D

Microbac Laboratories, Inc., Richmond Division

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Curtis B. Read, Project Manager

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11K0362
Joshua Carson	Project Number: [none]	Reported: 11/14/2011 16:53
PO BOX 424	Sampled By: Josh Carson	
Bowling Green, VA 22427		

Effluent

11K0362-04 (Wastewater) Sampled: 11/03/2011 08:15; Type: Composite

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Wet Chemistry								
Phosphorus, Total (as P)	**0.24**	0.010	mg/L	110811 0900	110811 1249	VAS	EPA 365.1	
Total Kjeldahl Nitrogen	**0.71**	0.10	mg/L	110711 1329	110811 1312	VAS	SM(20)4500N-org/NH3-G	

Influent

11K0362-05 (Wastewater) Sampled: 11/04/2011 08:30; Type: Composite

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Wet Chemistry								
Nitrate/Nitrite as N	**0.63**	0.050	mg/L	110711 1424	110711 1427	VAS	EPA 353.2	
Phosphorus, Total (as P)	**3.6**	0.10	mg/L	110811 0900	110811 1342	VAS	EPA 365.1	
Total Kjeldahl Nitrogen	**27**	1.0	mg/L	110711 1329	110811 1313	VAS	SM(20)4500N-org/NH3-G	D
Microbac Laboratories, Inc., Richmond Division								
Wet Chemistry								
Orthophosphate as P	**1.8**	0.020	mg/L	110411 1000	110411 1000	SAR	SM(18)4500P-E	

Effluent

11K0362-06 (Wastewater) Sampled: 11/04/2011 08:30; Type: Composite

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Wet Chemistry								

Microbac Laboratories, Inc., Richmond Division

Curtis B. Read, Project Manager

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11K0362
Joshua Carson	Project Number: [none]	Reported: 11/14/2011 16:53
PO BOX 424	Sampled By: Josh Carson	
Bowling Green, VA 22427		

Effluent

11K0362-06 (Wastewater) Sampled: 11/04/2011 08:30; Type: Composite

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Wet Chemistry								
Nitrate/Nitrite as N	**19**	0.50	mg/L	110711 1424	110711 1449	VAS	EPA 353.2	
Phosphorus, Total (as P)	**0.25**	0.010	mg/L	110811 0900	110811 1252	VAS	EPA 365.1	
Total Kjeldahl Nitrogen	**0.49**	0.10	mg/L	110711 1329	110811 1315	VAS	SM(20)4500N-org/NH3-G	
Microbac Laboratories, Inc., Richmond Division								
Wet Chemistry								
Orthophosphate as P	**0.21**	0.020	mg/L	110411 1000	110411 1000	SAR	SM(18)4500P-E	

Effluent

11K0362-07 (Wastewater) Sampled: 11/04/2011 08:30; Type: Grab

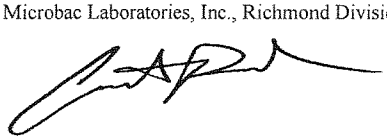
Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Metals, Total by EPA 200/6000 Series Methods								
Zinc	**0.042**	0.0050	mg/L	110711 1614	110811 1131	APS	EPA 200.7/6010B	

Belt Press Sludge

11K0362-08 (Solid) Sampled: 10/31/2011 15:00; Type: Grab

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Wet Chemistry								
% Solids	**18.35**	0.05	% by Weight	110711 1413	110811 1000	LCR	SM (20) 2540G	

Microbac Laboratories, Inc., Richmond Division



Curtis B. Read, Project Manager

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Richmond Division

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11K0362
Joshua Carson	Project Number: [none]	Reported: 11/14/2011 16:53
PO BOX 424	Sampled By: Josh Carson	
Bowling Green, VA 22427		

Belt Press Sludge

11K0362-08 (Solid) Sampled: 10/31/2011 15:00; Type: Grab

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Mercury, Total by EPA 7000 Series Methods								
Mercury	**0.59**	0.13	mg/kg dry	111111 1129	111111 1613	APS	SW846 7471A	D
Metals, Total by EPA 6000/7000 Series Methods								
Silver	ND	6.8	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Aluminum	**48000**	34	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Arsenic	ND	14	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Barium	**440**	6.8	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Beryllium	ND	2.7	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Calcium	**30000**	68	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Cadmium	**4.5**	1.4	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Cobalt	ND	6.8	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Chromium	**34**	6.8	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Copper	**480**	6.8	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Iron	**16000**	27	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Potassium	**2600**	68	mg/kg dry	110811 1127	111011 1353	APS	EPA 6010B	
Magnesium	**24000**	68	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Manganese	**740**	6.8	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Sodium	**2300**	1400	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Nickel	ND	14	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Lead	**26**	14	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Antimony	ND	27	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Selenium	ND	14	mg/kg dry	110811 1127	110911 1521	APS	EPA 6010B	
Thallium	ND	27	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Vanadium	**7.4**	6.8	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	
Zinc	**1300**	6.8	mg/kg dry	110811 1127	110911 1144	APS	EPA 6010B	

Microbac Laboratories, Inc., Richmond Division

Curtis B. Read, Project Manager

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11K0362
Joshua Carson	Project Number: [none]	Reported: 11/14/2011 16:53
PO BOX 424	Sampled By: Josh Carson	
Bowling Green, VA 22427		

Notes and Definitions

V8	Target analyte detected in CCB at or above reporting limit. The analyte concentration was below the reporting limit.
V7	Linearity Checks out of acceptance limits; result concentration was within calibration curve.
V1	CCV recovery was above acceptance limits. The concentration was below the reporting limit.
R4	MS/MSD RPD was out of acceptance limits.
R3	Sample Duplicate RPD was out of acceptance limits. The result concentration was within 5 times the reporting limit and the difference was less than the reporting limit.
R1	Sample Duplicate RPD was out of acceptance limits.
M5	The matrix spike recovery was biased low, the reported result is estimated.
M1	The matrix spike recovery was out of acceptance limits. The post digestion spike recovery was acceptable.
D	Sample Diluted
B7	Target analyte detected in continuing calibration blank at or above reporting limit.
B5	Target analyte detected in continuing calibration blank at or above reporting limit. The analyte concentration was below the reporting limit. No impact on data.
B4	Target analyte detected in continuing calibration blank at or above reporting limit. Concentration found in the samples was 20 times the concentration found in the blank. No impact on data.
B2	Target analyte detected in method blank at or above reporting limit. Concentration found in the samples was 20 times the concentration found in the method blank.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The enclosed results were obtained from and applicable to the sample(s) as received at the laboratory. All sample results are reported on an "as received" basis unless otherwise noted.

Microbac Laboratories, Inc., Richmond Division

Curtis B. Read, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All samples received in proper condition and results conform to ISO 17025 and TNI NELAC standards unless otherwise noted.

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Richmond Division

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11K0362
Joshua Carson	Project Number: [none]	Reported: 11/14/2011 16:53
PO BOX 424	Sampled By: Josh Carson	
Bowling Green, VA 22427		

Certifications

Below is a list of certifications maintained by Microbac Laboratories, Inc. All data included in this report has been reviewed for and meets all project specific and quality control requirements of the applicable accreditation, unless otherwise noted. A complete list of individual analytes pursuant to each certification below is available upon request.

Baltimore Division:

- A2LA (Microbiology): 410.02
- A2LA (Environmental): 410.01
- A2LA (ELLAP): 410.01
- CPSC: 1115
- Maryland: 109
- Pennsylvania (NELAC): 68-00339
- USDA: S-53726
- Virginia: 00152

Richmond Division:

- Virginia: 00150

Microbac®

Microbac Laboratories, Inc.

Baltimore Division

2101 Van Deman Street • Baltimore, MD 21224

Phone: 410-633-1800
Fax: 410-633-6553
www.microbac.com

Cooler Receipt Log for Work Order: 11K0362

Cooler ID: Default Cooler **Cooler Temp:** 2.70 °C

Custody Seals Intact:	Yes	COC/Containers Agree:	Yes
Containers Intact:	Yes	Correct Preservation:	Yes
Received On Ice:	Yes	Correct Number of Containers Received:	Yes
Radiation Scan Acceptable:	No	Sufficient Sample Volume for Testing:	Yes
COC Present:	Yes	Samples Received in Proper Condition:	Yes

Comments:

Work Order Number: 362

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Tel: 804-353-1999 Fax: 804-353-0330

Sample Submittal
Chain of Custody Record

Microbac

Client Name Caroline County WWTP	**Project**	**Turnaround Time (Required)**	**QC and EDD Type (Required)**
Address 22101 Rogers Clark Blvd.	**Location**	[ ] Routine (10 working days)	[ ] Level I [ ] EDD
City, State, Zip Ruther Glen, VA 22546	**PO #**	[ ] RUSH* (notify lab)	[ ] Level II Format:
Contact	Compliance Monitoring? [ ] Yes [ ] No	(needed by)	[ ] Level III Comments:
Telephone # 804-448-0922	(1) Agency/Program		[ ] Level IV CLP-like

Sampled by (PRINT) Josh Carson **Sampler Signature** Josh Carson **Sampler Phone #**

Send Report via [ ] e-mail (address) [ ] Mail [ ] Telephone [ ] Fax (fax #)

* **Matrix Types:** Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analysis: TKN	NO3 & NO2	T. Phosphorus	Orthophosphate	Zinc	TCLP Metals				
Influent	WW		X		11/1 -11-2-11	0800-0800	2	X		X							
Effluent	↓		↓		↓	↓	2	X		X							
Influent					11/2 - 11-3-11	0815-0815	2	X		X							
Effluent					↓	↓	2	X		X							
Influent				1	11/3 - 11-4-11	0830-0830	3	X	X	X	X						Ortho filtered only
Effluent	↓		↓	1	↓	↓	3	X	X	X	X						Ortho filtered only
Effluent	WW	X			11-4-11	0830	1					X					
Belt Press Sludge	S	X			10-31-11	1500	1						X				

11K0362

Possible Hazard Identification [ ] Hazardous [ ] Non-Hazardous [ ] Radioactive **Sample Disposition** [ ] Dispose as appropriate [ ] Return [ ] Archive

Number of Containers: 16	**Relinquished By (signature)** Josh Carson	Printed Name/Affiliation Josh Carson	Date/Time 11-4-11 / 11:20	**Received By (signature)**	Printed Name/Affiliation MB
Cooler Number:	**Relinquished By (signature)**	Printed Name/Affiliation MB	Date/Time 11/4/11 12:05	**Received By (signature)**	Printed Name/Affiliation
Temp upon receipt (°C): 2.7°C	**Relinquished By (signature)**	Printed Name/Affiliation	Date/Time 11-7-11 800	**Received for Lab By (signature)**	Printed Name/Affiliation
Sample Received on Ice or Refrigerated from Client (Yes) No					

Page 8 of 8

Rev. 04/24/08

WHITE - LAB YELLOW - REPORT

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11G1482
Joshua Carson	Project Number: [none]	Reported: 08/17/2011 09:51
PO BOX 424	Sampled By: Martina Conley	
Bowling Green, VA 22427		

Sandbed Sludge

11G1482-01 (Solid) Sampled: 07/29/2011 08:20; Type: Grab

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
TCLP Extraction by EPA 1311								
TCLP Extraction	**COMPLETED**		N/A	080411 1513	080511 1045	BMC	EPA 1311	
TCLP Metals by 6000/7000 Series Methods								
Silver	ND	0.20	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Arsenic	ND	0.20	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Barium	**0.68**	0.50	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Cadmium	ND	0.20	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Chromium	ND	0.20	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Mercury	ND	0.0020	mg/L	080811 1157	080811 1623	EDP	SW846 7471A	D
Antimony	ND	0.50	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Arsenic	ND	0.20	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Barium	**0.68**	0.50	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Cadmium	ND	0.20	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Chromium	ND	0.20	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Lead	ND	0.20	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Selenium	ND	0.20	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Silver	ND	0.20	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Lead	ND	0.20	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
Selenium	ND	0.20	mg/L	080911 1624	081111 1646	APS	EPA 6010B	D
TCLP Volatile Organic Compounds by EPA Method 1311/8260B								
Vinyl chloride	ND	0.097	mg/L	080411 1834	080411 1834	MBH	EPA 1311/EPA 8260B	D
1,1-Dichloroethene	ND	0.097	mg/L	080411 1834	080411 1834	MBH	EPA 1311/EPA 8260B	D
2-Butanone (MEK)	ND	0.48	mg/L	080411 1834	080411 1834	MBH	EPA 1311/EPA 8260B	V1, D
Carbon Tetrachloride	ND	0.097	mg/L	080411 1834	080411 1834	MBH	EPA 1311/EPA 8260B	D
Benzene	ND	0.097	mg/L	080411 1834	080411 1834	MBH	EPA 1311/EPA 8260B	D

Microbac Laboratories, Inc., Richmond Division

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Curtis B. Read, Project Manager

Microbac

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Richmond Division

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Fax: 804-353-0330
www.microbac.com

CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11G1482
Joshua Carson	Project Number: [none]	Reported: 08/17/2011 09:51
PO BOX 424	Sampled By: Martina Conley	
Bowling Green, VA 22427		

Sandbed Sludge

11G1482-01 (Solid) Sampled: 07/29/2011 08:20; Type: Grab

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
TCLP Volatile Organic Compounds by EPA Method 1311/8260B								
1,2-Dichloroethane	ND	0.097	mg/L	080411 1834	080411 1834	MBH	EPA 1311/EPA 8260B	D
Trichloroethene	ND	0.097	mg/L	080411 1834	080411 1834	MBH	EPA 1311/EPA 8260B	D
Tetrachloroethene	ND	0.097	mg/L	080411 1834	080411 1834	MBH	EPA 1311/EPA 8260B	D
Chlorobenzene	ND	0.097	mg/L	080411 1834	080411 1834	MBH	EPA 1311/EPA 8260B	D
1,4-Dichlorobenzene	ND	0.097	mg/L	080411 1834	080411 1834	MBH	EPA 1311/EPA 8260B	D
Surrogate: Dibromofluoromethane		*98.2%*	*88.2-105*	*080411 1834*	*080411 1834*		*EPA 1311/EPA 8260B*	
Surrogate: 1,2-Dichloroethane-d4		*101%*	*78.6-112*	*080411 1834*	*080411 1834*		*EPA 1311/EPA 8260B*	
Surrogate: Toluene-d8		*102%*	*96.5-105*	*080411 1834*	*080411 1834*		*EPA 1311/EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*99.7%*	*93.2-105*	*080411 1834*	*080411 1834*		*EPA 1311/EPA 8260B*	
TCLP Semivolatiles by EPA Method 1311/8270C								
Total Cresols	ND	1.0	mg/L	080811 1206	080911 1300	RCS	EPA 1311/EPA 8270C	D
Pyridine	ND	0.025	mg/L	080811 1206	080911 1300	RCS	EPA 1311/EPA 8270C	D
1,4-Dichlorobenzene	ND	0.025	mg/L	080811 1206	080911 1300	RCS	EPA 1311/EPA 8270C	D
2-Methylphenol	ND	0.025	mg/L	080811 1206	080911 1300	RCS	EPA 1311/EPA 8270C	D
Hexachloroethane	ND	0.025	mg/L	080811 1206	080911 1300	RCS	EPA 1311/EPA 8270C	D
4-Methylphenol, 3-Methylphenol	ND	0.025	mg/L	080811 1206	080911 1300	RCS	EPA 1311/EPA 8270C	D
Nitrobenzene	ND	0.025	mg/L	080811 1206	080911 1300	RCS	EPA 1311/EPA 8270C	D
Hexachlorobutadiene	ND	0.025	mg/L	080811 1206	080911 1300	RCS	EPA 1311/EPA 8270C	D
2,4,6-Trichlorophenol	ND	0.025	mg/L	080811 1206	080911 1300	RCS	EPA 1311/EPA 8270C	D
2,4,5-Trichlorophenol	ND	0.025	mg/L	080811 1206	080911 1300	RCS	EPA 1311/EPA 8270C	D
2,4-Dinitrotoluene	ND	0.025	mg/L	080811 1206	080911 1300	RCS	EPA 1311/EPA 8270C	D
Hexachlorobenzene	ND	0.025	mg/L	080811 1206	080911 1300	RCS	EPA 1311/EPA 8270C	D
Pentachlorophenol	ND	0.050	mg/L	080811 1206	080911 1300	RCS	EPA 1311/EPA 8270C	D
Surrogate: 2-Fluorophenol		*28.9%*	*0.974-78.2*	*080811 1206*	*080911 1300*		*EPA 1311/EPA 8270C*	

Microbac Laboratories, Inc., Richmond Division

Curtis B. Read, Project Manager

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11G1482
Joshua Carson	Project Number: [none]	Reported: 08/17/2011 09:51
PO BOX 424	Sampled By: Martina Conley	
Bowling Green, VA 22427		

Sandbed Sludge

11G1482-01 (Solid) Sampled: 07/29/2011 08:20; Type: Grab

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
TCLP Semivolatiles by EPA Method 1311/8270C								
Surrogate: Phenol-d5		*16.0%*	*0-57.5*	*080811 1206*	*080911 1300*		*EPA 1311/EPA 8270C*	
Surrogate: Nitrobenzene-d5		*46.1%*	*15.3-131*	*080811 1206*	*080911 1300*		*EPA 1311/EPA 8270C*	
Surrogate: 2-Fluorobiphenyl		*47.9%*	*3.75-142*	*080811 1206*	*080911 1300*		*EPA 1311/EPA 8270C*	
Surrogate: 2,4,6-Tribromophenol		*69.2%*	*12.5-139*	*080811 1206*	*080911 1300*		*EPA 1311/EPA 8270C*	
Surrogate: Terphenyl-d14		*35.2%*	*16.6-136*	*080811 1206*	*080911 1300*		*EPA 1311/EPA 8270C*	
Microbac Laboratories, Inc. - Ohio Valley								
TCLP HERBICIDES								
2,4-D	ND	20.0	ug/L	081111 1500	081511 1505	ECL	SW8151A	
2,4,5-TP (Silvex)	ND	2.00	ug/L	081111 1500	081511 1505	ECL	SW8151A	
Surrogate: 2,4-Dichlorophenylacetic acid		*55.5%*	*20-144*	*081111 1500*	*081511 1505*		*SW8151A*	

Influent

11G1482-02 (Wastewater) Sampled: 07/29/2011 08:45; Type: Grab

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Wet Chemistry								
Cyanide, Total	ND	0.0050	mg/L	080211 0740	080311 1133	VAS	EPA 335.4	
BTEX								
Methyl-tert-Butyl Ether	ND	1.0	ug/L	080411 1712	080411 1712	MBH	EPA 8260B	
Benzene	ND	1.0	ug/L	080411 1712	080411 1712	MBH	EPA 8260B	
Toluene	ND	1.0	ug/L	080411 1712	080411 1712	MBH	EPA 8260B	
Ethylbenzene	ND	1.0	ug/L	080411 1712	080411 1712	MBH	EPA 8260B	

Microbac Laboratories, Inc., Richmond Division

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Curtis B. Read, Project Manager

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11G1482
Joshua Carson	Project Number: [none]	Reported: 08/17/2011 09:51
PO BOX 424	Sampled By: Martina Conley	
Bowling Green, VA 22427		

Influent

11G1482-02 (Wastewater) Sampled: 07/29/2011 08:45; Type: Grab

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
BTEX								
m,p-Xylenes	ND	2.0	ug/L	080411 1712	080411 1712	MBH	EPA 8260B	
o-Xylene	ND	1.0	ug/L	080411 1712	080411 1712	MBH	EPA 8260B	
Total Xylenes	ND	3.0	ug/L	080411 1712	080411 1712	MBH	EPA 8260B	
Surrogate: Dibromofluoromethane		*101%*	*87-112*	*080411 1712*	*080411 1712*		*EPA 8260B*	
Surrogate: 1,2-Dichloroethane-d4		*107%*	*76.9-123*	*080411 1712*	*080411 1712*		*EPA 8260B*	
Surrogate: Toluene-d8		*104%*	*94.5-105*	*080411 1712*	*080411 1712*		*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*99.9%*	*86.4-116*	*080411 1712*	*080411 1712*		*EPA 8260B*	
Oil and Grease								
Oil & Grease	**19**	5	mg/L	080111 1533	080211 1414	BAB	EPA 1664A	

Influent

11G1482-03 (Wastewater) Sampled: 07/29/2011 08:30; Type: Composite

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Wet Chemistry								
Chloride	**190**	2.0	mg/L	080311 1126	080311 1230	BMC	SM (20) 4500Cl-C	D
Hexavalent Chromium	**0.67**	0.0050	mg/L	080211 0840	080411 0736	LCR	SM(20)3500Cr-D	H1
Calculated Results								
Trivalent Chromium	ND	0.0050	mg/L	080311 1018	080411 1314	PBK	Calculation	
Mercury, Total by EPA 200/7000 Series Methods								
Mercury	ND	0.00020	mg/L	080311 0952	080311 1537	APS	EPA 245.1/7470A	

Microbac Laboratories, Inc., Richmond Division

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11G1482
Joshua Carson	Project Number: [none]	Reported: 08/17/2011 09:51
PO BOX 424	Sampled By: Martina Conley	
Bowling Green, VA 22427		

Influent

11G1482-03 (Wastewater) Sampled: 07/29/2011 08:30; Type: Composite

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Metals, Total by EPA 200/6000 Series Methods								
Silver	ND	0.0040	mg/L	080211 1637	080311 1600	APS	EPA 200.7/6010B	
Aluminum	**0.88**	0.025	mg/L	080211 1637	080311 1600	APS	EPA 200.7/6010B	
Arsenic	ND	0.020	mg/L	080211 1637	080311 1600	APS	EPA 200.7/6010B	
Cadmium	ND	0.00050	mg/L	080211 1637	080311 1600	APS	EPA 200.7/6010B	
Chromium	**0.0035**	0.0020	mg/L	080311 1018	080411 1314	PBK	EPA 200.8/6020	
Copper	**0.032**	0.0010	mg/L	080211 1637	080311 1600	APS	EPA 200.7/6010B	
Nickel	ND	0.010	mg/L	080211 1637	080311 1600	APS	EPA 200.7/6010B	
Lead	ND	0.010	mg/L	080211 1637	080311 1600	APS	EPA 200.7/6010B	
Selenium	ND	0.010	mg/L	080211 1637	080311 1600	APS	EPA 200.7/6010B	
Zinc	**0.22**	0.0050	mg/L	080211 1637	080311 1600	APS	EPA 200.7/6010B	

Effluent

11G1482-04 (Wastewater) Sampled: 07/29/2011 08:35; Type: Grab

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Wet Chemistry								
Cyanide, Total	ND	0.0050	mg/L	080211 0740	080311 1131	VAS	EPA 335.4	
BTEX								
Methyl-tert-Butyl Ether	ND	1.0	ug/L	080411 1644	080411 1644	MBH	EPA 8260B	
Benzene	ND	1.0	ug/L	080411 1644	080411 1644	MBH	EPA 8260B	
Toluene	ND	1.0	ug/L	080411 1644	080411 1644	MBH	EPA 8260B	
Ethylbenzene	ND	1.0	ug/L	080411 1644	080411 1644	MBH	EPA 8260B	

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11G1482
Joshua Carson	Project Number: [none]	Reported: 08/17/2011 09:51
PO BOX 424	Sampled By: Martina Conley	
Bowling Green, VA 22427		

Effluent

11G1482-04 (Wastewater) Sampled: 07/29/2011 08:35; Type: Grab

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
BTEX								
m,p-Xylenes	ND	2.0	ug/L	080411 1644	080411 1644	MBH	EPA 8260B	
o-Xylene	ND	1.0	ug/L	080411 1644	080411 1644	MBH	EPA 8260B	
Total Xylenes	ND	3.0	ug/L	080411 1644	080411 1644	MBH	EPA 8260B	
Surrogate: Dibromofluoromethane		*102%*	*87-112*	*080411 1644*	*080411 1644*		*EPA 8260B*	
Surrogate: 1,2-Dichloroethane-d4		*107%*	*76.9-123*	*080411 1644*	*080411 1644*		*EPA 8260B*	
Surrogate: Toluene-d8		*101%*	*94.5-105*	*080411 1644*	*080411 1644*		*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*99.6%*	*86.4-116*	*080411 1644*	*080411 1644*		*EPA 8260B*	
Oil and Grease								
Oil & Grease	ND	5	mg/L	080211 1400	080211 1416	BAB	EPA 1664A	

Effluent

11G1482-05 (Wastewater) Sampled: 07/29/2011 08:30; Type: Composite

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Microbac Laboratories, Inc., Baltimore Division								
Wet Chemistry								
Chloride	**170**	2.0	mg/L	080311 1126	080311 1230	BMC	SM (20) 4500Cl-C	D
Hexavalent Chromium	**0.012**	0.0050	mg/L	080211 0840	080411 0736	LCR	SM(20)3500Cr-D	H1
Calculated Results								
Trivalent Chromium	ND	0.0050	mg/L	080311 1018	080411 1316	PBK	Calculation	
Mercury, Total by EPA 200/7000 Series Methods								
Mercury	ND	0.00020	mg/L	080311 0952	080311 1540	APS	EPA 245.1/7470A	

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11G1482
Joshua Carson	Project Number: [none]	Reported: 08/17/2011 09:51
PO BOX 424	Sampled By: Martina Conley	
Bowling Green, VA 22427		

Effluent

11G1482-05 (Wastewater) Sampled: 07/29/2011 08:30; Type: Composite

Microbac Laboratories, Inc., Baltimore Division

Metals, Total by EPA 200/6000 Series Methods

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed	Analyst	Method	Notes
Silver	ND	0.0040	mg/L	080211 1637	080311 1633	APS	EPA 200.7/6010B	
Aluminum	**0.16**	0.025	mg/L	080211 1637	080311 1633	APS	EPA 200.7/6010B	
Arsenic	ND	0.020	mg/L	080211 1637	080311 1633	APS	EPA 200.7/6010B	
Cadmium	ND	0.00050	mg/L	080211 1637	080311 1633	APS	EPA 200.7/6010B	
Chromium	ND	0.0020	mg/L	080311 1018	080411 1316	PBK	EPA 200.8/6020	
Copper	ND	0.0010	mg/L	080211 1637	080311 1633	APS	EPA 200.7/6010B	
Nickel	ND	0.010	mg/L	080211 1637	080311 1633	APS	EPA 200.7/6010B	
Lead	ND	0.010	mg/L	080211 1637	080311 1633	APS	EPA 200.7/6010B	
Selenium	ND	0.010	mg/L	080211 1637	080311 1633	APS	EPA 200.7/6010B	
Zinc	**0.025**	0.0050	mg/L	080211 1637	080311 1633	APS	EPA 200.7/6010B	

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11G1482
Joshua Carson	Project Number: [none]	Reported: 08/17/2011 09:51
PO BOX 424	Sampled By: Martina Conley	
Bowling Green, VA 22427		

Notes and Definitions

Z4	COMPLETED
V8	Target analyte detected in CCB at or above reporting limit. The analyte concentration was below the reporting limit.
V7	Linearity Checks out of acceptance limits; result concentration was within calibration curve.
V4	ICV recovery was above acceptance limits. The concentration was below the reporting limit.
V1	CCV recovery was above acceptance limits. The concentration was below the reporting limit.
S4	Surrogate recovery was below laboratory acceptance limits. Reported data is estimated.
R3	Sample Duplicate RPD was out of acceptance limits. The result concentration was within 5 times the reporting limit and the difference was less than the reporting limit.
J	Analyte concentration is greater than the MDL but less than the reporting limit.
H1	Sample analyzed past maximum recommended holding time.
D	Sample Diluted
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The enclosed results were obtained from and applicable to the sample(s) as received at the laboratory. All sample results are reported on an "as received" basis unless otherwise noted.

Microbac Laboratories, Inc., Richmond Division

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CERTIFICATE OF ANALYSIS

Caroline County Dept. of Public Utilitie	Project: Analytical Testing	Report: 11G1482
Joshua Carson	Project Number: [none]	Reported: 08/17/2011 09:51
PO BOX 424	Sampled By: Martina Conley	
Bowling Green, VA 22427		

Certifications

Below is a list of certifications maintained by Microbac Laboratories, Inc. All data included in this report has been reviewed for and meets all project specific and quality control requirements of the applicable accreditation, unless otherwise noted. A complete list of individual analytes pursuant to each certification below is available upon request.

Baltimore Division:
- A2LA (Microbiology): 410.02
- A2LA (Environmental): 410.01
- A2LA (ELLAP): 410.01
- CPSC: 1115
- Maryland: 109
- Pennsylvania (NELAC): 68-00339
- USDA: S-53726
- Virginia: 00152

Richmond Division:
- Virginia: 00150

Cooler Receipt Log

11G1482

Cooler ID: Default Cooler **Cooler Temp:** 3.40 °C

Custody Seals Intact:	Yes	COC/Containers Agree:	Yes
Containers Intact:	Yes	Correct Preservation:	Yes
Received On Ice:	Yes	Correct Number of Containers Received:	Yes
Radiation Scan Acceptable:	NA	Sufficient Sample Volume for Testing:	Yes
COC Present:	Yes	Samples Received in Proper Condition:	Yes

Comments:

Work Order Number:

Richmond Division
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Sample Submittal
Chain of Custody Record

Microb

11G1482

Client Name: Caroline County Regional WWTP	Project	Turnaround Time (Required)	QC and EDD Type (Rec
Address: 22101 Rogers Clark Blvd.	Location	[✓] Routine (10 working days)	[ ] Level I / [ ] EDD
City, State, Zip: Ruther Glen, VA 22546	PO #	[✓] RUSH* (notify lab)	[ ] Level II / Format:
Contact: Josh	Compliance Monitoring? [✓] Yes [ ] No	Need effluent zinc by 8-8-11 (DMR) (needed by)	[ ] Level III / Comments
Telephone #: 804-448-0922	(1) Agency/Program		[ ] Level IV CLP-like

Sampled by (PRINT): Martina Conley Sampler Signature: Martina Conley Sampler Phone #:

Send Report via [✓] e-mail (address) jcarson@co.caroline.va.us [ ] Mail [ ] Telephone [ ] Fax (fax #)

* **Matrix Types:** Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analysis: TCLP Full	BTEX	Metals	Chlorides	Cyanide	O&G	Chromium III	Chromium VI	Comments
Sandbed Sludge	S	X			7-29-11	0820	1	X								Include any metals above that are not included in TCLP metals.
Influent	WW	X			7-29-11	0845	4		X			X	X			
Influent	↓		X		7/28 - 7-29-11	0830 - 0830	4			X	X			X	X	
Effluent	↓	X			7-29-11	0835	4		X			X	X			
Effluent	↓		X		7/28 - 7-29-11	0830 - 0830	4			X	X			X	X	
																Need another set of bottles.

Metals: Al, As, Cd, Cu, Pb, Ni, Zn, Ag, Se, Hg

Possible Hazard Identification [ ] Hazardous [ ] Non-Hazardous [ ] Radioactive **Sample Disposition** [ ] Dispose as appropriate [ ] Return [ ] Archive

Number of Containers: 17	Relinquished By (signature): Josh Carson	Printed Name/Affiliation: Josh Carson	Date/Time: 7-29-11 / 10:45	Received By (signature): [illegible]	Printed Name/Affiliation: MB
Cooler Number:	Relinquished By (signature): [illegible]	Printed Name/Affiliation: MB	Date/Time: 7/29/11 11:30	Received By (signature): [illegible]	Printed Name/Affiliation:
Temp upon receipt (°C): 3.4°C	Relinquished By (signature): [illegible]	Printed Name/Affiliation:	Date/Time: 8/1/11 [illegible]	Received for Lab By (signature): [illegible]	Printed Name/Affiliation:
Sample Received on Ice or Refrigerated from Client: Yes / No					

Page 10 of 10

Rev. 04/24/08 WHITE - LAB YELLOW - REPORT